

# **MINUTES**



**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES  
71<sup>ST</sup> EXECUTIVE COMMITTEE MEETING  
OPEN SESSION**

**February 15<sup>th</sup>-17<sup>th</sup>, 2017**

**UNESCO Fontenoy Building  
Paris, France**

**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES  
71<sup>ST</sup> EXECUTIVE COMMITTEE MEETING**

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**Participants**

**IUGS Executive Committee:**

CHENG Qiuming (CQ; President), Stanley FINNEY (SF; Secretary General), Hiroshi KITAZATO (HK; Treasurer), Roland OBERHAENSLI (RO, Past President, Chair of Nominating Committee), José P. CALVO (JC; Past Secretary General/ex-officio EC member), Kristine ASCH (KA; Vice President), William CAVAZZA (WC; Vice President), Stephen JOHNSTON (SJ; Councilor), Edmund NICKLESS (EN; Councilor), Benjamin MAPANI (BM; Councilor)

**Observers** (attending parts of the meeting):

Patrick MCKEEVER (UNESCO), Margrete PATZAK (UNESCO), Silvia PEPPOLONI (International Association for Promoting Geoethics, IAPG/Councilor for 2018-2022), Shailesh NAYAK (36<sup>th</sup> IGC), Dolores PEREIRA (IUGS Publications Committee), Francois ROBIDA (Commission on Geoscience Information, CGI), Philippe TACQUET (International Commission on the History of Geological Sciences, INHIGEO), Gaston GODARD (INHIGEO), David HARPER (International Commission on Stratigraphy, ICS), Chris KING (Commission on Geoscience Education, Training & Technology, COGE), Patrick DE WEVER (International Commission on Geoheritage, ICG), Alecos DEMETRIADES (Commission on Global Geochemical Baselines, CGGB), Igor VILLA (Task Group on Isotope Geology and Geochronology, TGIG), Isabel FERNANDEZ (Task Group on Global Geoscience Professionalism, TGGGP), Yasukuni OKUBO (Task Group on Geohazards, TGG), Jennifer MCKINLEY (Initiative on Forensic Geology, IFG/International Association of Mathematical Geology, IAMG), Eric GRUNSKY (IAMG), David Russell COLLINS (IAMG), Jorgina ROSS (IAMG), Rainon TOLOSANA-DELGADO (IAMG), Philippe ROSSI (Commission for the Geological Map of the World, CGMW), Eduardo DE MULDER (Earth Science Matters, ESM), Courtney E. JERMYN (Earth Science Matters, ESM), WANG Meng (Young Earth Scientists Network, YES), Sarmad Sh. MAHMOOD (Arab Geologists Association, AGA), Sylvain CHARBONNIER (French Geological Society), Subrata CHAKRABORTI (Geological Survey of India), Luca DEMICHELI (EuroGeoSurveys), Di Capua GIUSEPPE (IAPG)

**IUGS Secretariat:**

HE Qingcheng (Director), WANG Wei (Executive Secretary), GU Yanfei (Secretary), CHEN Zhu (IT Specialist)

**Apologies:**

Amel BARICH (AB, Councilor)

## **1. Welcoming Addresses**

Cheng Qiuming (CQ), IUGS President, warmly welcomed all the participants in the 71<sup>st</sup> IUGS EC Meeting and sincerely thanked the UNESCO colleagues and the French IUGS National Committee for their great support for the convening of the 71<sup>st</sup> IUGS EC Meeting at the UNESCO headquarters in Paris. CQ recalled the friendly and fruitful cooperation between IUGS and UNESCO in the field of geosciences and called for closer cooperation ties in the future. CQ noted that the 71<sup>st</sup> EC Meeting was the first EC Meeting held since the election of the new IUGS EC at the IUGS-IGC Council Meeting held during the 35<sup>th</sup> International Geological Congress (IGC) and hoped that all the IUGS bodies could take this opportunity to carry out in-depth exchanges about the ongoing IUGS activities and work together with the new IUGS EC to further push forward the IUGS scientific activities and enhance IUGS' global visibility and influence in the coming years.

Patrick McKeever, Chief of Earth Sciences and Geohazard Risk Reduction at UNESCO and IGCP Executive Secretary, welcomed all the participants to attend the 71<sup>st</sup> EC Meeting at the UNESCO headquarters. He briefly recalled the history of the International Geological Correlation Programme (IGCP) and the important role it played in facilitating international collaboration among geoscientists across the globe since its initiation in the 1970s. He introduced that with the help and advice of IUGS, IGCP was remolded into the International Geoscience and Geoparks Programme (IGGP) within UNESCO in 2015 to better promote the scientific development and social relevance of earth sciences. He concluded that the earth sciences team at UNESCO would like to enhance cooperation with IUGS in the future and stood ready to render help if needed.

Sylvain Charbonnier, President of the French Geological Society and Chairman of the French National Committee for IUGS, welcomed all the participants in the 71<sup>st</sup> IUGS EC Meeting and briefly introduced the history and scientific activities of the French Geological Society. He noted that the French Geological Society had maintained long-term fruitful cooperation with IUGS and was pleased that the 71<sup>st</sup> IUGS EC could be held at the UNESCO headquarters in Paris. He wished for a success of the EC Meeting and a pleasant stay of all the participants in Paris.

## **2. Discussion and Approval of Agenda**

Stanley Finney (SF), IUGS Secretary-General, made 2 additions to the Agenda.

- 1) Item 18: Discussion on reports and decisions of Commissions, Task Groups, and Initiatives.

Under this item, the officers of the IUGS Commissions, Task Groups and Initiatives (2016-2020) needed to be approved by the EC at this Meeting and then formally ratified by the IUGS Council by electronic ballot.

- 2) Item 25: Other Business

The International Union of Biological Sciences (IUBS) received a large amount of grant from ICSU for a project proposal, of which IUGS was a co-sponsor. Under

this item, what part IUGS should play in the project should be discussed.

William Cavazza, IUGS Vice President, suggested discussions be added under Item 14 as 14.c on whether an IGC should be decided 8 years in advance as practiced in the recent years or should return to the traditional way of deciding an IGC venue 4 years in advance.

Motion to approve the Agenda with the above 3 revisions

**Passed unanimously**

CQ made clear that the voting members of this Meeting were the current IUGS EC Members, including the IUGS Past President and Secretary General.

### **3. 2016 Executive Committee and Bureau Meetings**

#### **3.a. Approval of Minutes of the 70<sup>th</sup> EC in Cape Town (August)**

The Minutes of the 70<sup>th</sup> EC Meeting was distributed to all the participants in the meeting document package in advance.

Motion to approve the Minutes of the 70<sup>th</sup> EC Meeting

**Approved**

#### **3.b Status of Action arising from the 70<sup>th</sup> EC**

A list of actions arising from the 70<sup>th</sup> EC Meeting was distributed in the meeting document package in advance and most of the pertinent actions had been completed.

#### **3.c. Bureau meetings in Cape Town (August) and Beijing (November)**

One of the two Bureau Meetings was held by the last EC in Cape Town in August 2016 and the other was held by the current EC in Beijing on November 11-12, 2016. The Minutes of the two Meetings were distributed in the meeting document package in advance for all the participants' information. The Minutes of the Bureau Meeting held in Beijing in November was approved at the 2<sup>nd</sup> Bureau Meeting of the current EC held in Paris on Feb. 14, 2017.

CQ reported the main outcomes of the Bureau Meeting in Beijing included: 1) IUGS officials getting familiar with the IUGS Secretariat office; 2) Successful transfer of the IUGS account from Beijing to Japan; 3) Discussions of the agenda and preparations for the 71<sup>st</sup> IUGS EC Meeting; 4) Other urgent matters including the Publications Committee, *Episodes*, E-Bulletin etc.

Roland Oberhaensli (RO), Past IUGS President, commented that the Bureau Meeting

in Cape Town was a successful and smooth handover meeting.

One revision was made in the Action List of the Bureau Meeting in Beijing:

Action BM01\_04 Hiroshi Kitazato to make sure that all the allocation in 2016 should be finished before the end of 2016.

Hiroshi Kitazato (HK), IUGS Treasurer, explained that due to the transfer of the IGC fund and some members still submitting membership fees to the IUGS bank account based in Beijing, the above action was not completely done but mostly done.

#### Motion to approve the Minutes of the two Bureau Meetings

#### **Approved**

### **4. Executive Committee Reports**

#### **4.a. President's Report (CHENG Qiuming)**

CQ reported that he had devoted himself to getting familiarized with the Statutes and Bylaws, procedures, as well as the internal and external structures of IUGS and given much thought on the strategic development of IUGS in the future. CQ expressed thanks to all the individuals who supported and helped him for their valuable experience and advice. CQ introduced the IUGS-related activities he had been engaged since the 35<sup>th</sup> IGC, outlined the main challenges facing IUGS, and put forward his suggestions and ideas for actions.

##### **a. Matters since the 35<sup>th</sup> IGC**

- CQ attended the IUGS-related activities and the 4<sup>th</sup> IUGS-IGC Council Meeting during the 35<sup>th</sup> IGC. He recalled the two main outcomes of the Council Meeting: the new IUGS EC being elected and the 37<sup>th</sup> IGC venue being decided in Busan, South Korea in 2024. So far, three future important IUGS conferences had been decided, namely 2018 RFG Conference in Vancouver, Canada in 2018, the 36<sup>th</sup> IGC in New Delhi, India in 2020 and the 37<sup>th</sup> IGC in Busan, South Korea in 2024.
- He expressed his thanks to the former EC for the EC Handover Meeting in Cape Town and help with the smooth transition.
- He attended the CoDATA General Assembly held in Denver on September 10, 2016 and visited the China Geological Survey on October 16, 2016. He and RO attended the ICSU-ISSC Extraordinary General Assembly in Oslo on October 23-28, 2016. He also visited the Norway Ministry of Foreign Affairs on October 25, 2016 and met with IUGS former Secretary General Richard Sinding-Larsen, with whom he discussed a proposal for “Geointelligence for resource-based economic development in Africa”.



- He attended the Scientific Committee Meeting of the Research Lab on Geochemistry and UNESCO International Center of Global Scale Geochemistry in Beijing on Nov. 10, 2016 and an event of launching big Science Program on Karst Study by the UNESCO International Center on Karst in Guilin, China on Nov. 13-14, 2016.
- He attended the first IUGS Bureau Meeting of the new EC in Beijing on Nov. 11-12, 2016 and thanked the China Geological Survey and Chinese Academy of Geological Sciences for their support for the meeting.

#### **b. Main challenges facing IUGS**

- CQ noted that IUGS had played important roles in promoting the geosciences worldwide, such as IGCP, GeoParks and Resourcing Future Generations, ultimately achieving its international reputation as one of the largest scientific unions supporting 120 nations and a million geoscientists. However, IUGS still faced many challenges in finding ways to sustainably increase memberships and participation of Adhering Organizations, further improve contributions, enhancing international influence and better serving both the science and the society.
- He introduced that from the perspective of science development, IUGS needed to increase the contributions and visibility in leading global geosciences and provide geoscientific support and solutions to critical issues facing mankind, including resources/energy, global change, and hazards.
- He pointed out that although the total IUGS members were 121, the recent years had seen a declining and fluctuating trend in membership, with only 74 active members. He stressed that actions should be taken by the current EC to reverse the declining trend in membership. He analyzed the geographic location of the inactive members being mainly distributed along a convergent boundary and in the African continent so as to make targeted efforts to bring them back to the IUGS family. He said that it was critical to outline convincing membership benefits so as to increase IUGS membership.
- He pointed out the strengths of IUGS included the following: 1) IUGS was one of the few international unions covering almost all the geoscience disciplines, which gave IUGS unique advantages for playing leading roles in international collaboration in geosciences. Facilitating cross-disciplinary and convergent research and bridging natural science, social science and engineering as well as fundamental research and solution-oriented science and technology presented both challenges and new opportunities for IUGS. 2) IUGS had established solid collaboration ties with other international organizations including ICSU, UNESCO, and GeoUnions, providing the basis to play a collective leading role in global geosciences. He suggested that IUGS should play a bigger role in the Future Earth programme (2015-2015) led by ICSU. He introduced that two years ago E.de Mulder, Former IUGS President (2000-2004),

and RO in collaboration with officers from other 10 international organizations co-authored a document entitled “Geosciences for Future Earth Research”, which would be hopefully used as an complementary document for the Future Earth programme; 3) IUGS had initiated and participated in many successful programs, including IGCP, Geoparks, One Geology, RFG, IUGS-RS, IFG, Chem-Earth etc, which not only demonstrated the contributions of IUGS to science and society but also formed a firm base for further development. 4) IUGS’ Adhering and Affiliated Organizations generated the most comprehensive geo big data as well as knowledge bases which were essential for solving complex geo-problems, for example, compositional, structural, processes, geneses problem, and temporal problems.

### **c. Suggestions**

- CQ put forward strategic ideas on future IUGS projects. He commented that with the ICSU-ISSC merging and new Science International Accord for Open Data in a Big Data World, excellent opportunities were opened up for IUGS to develop and lead in new comprehensive programs such as “Big Data Mining” for support mitigation of hazards and resourcing future generation program and many other IUGS programs. This “Smart Future Earth” project could provide open data and knowledge base for free access from all around the world for research, application and education. Particularly, with big data, internet and big data mining engine or geo-knowledge and intelligence, IUGS could provide big data and geointelligence for resources – environment – hazards decision support. Such a project could realize the global free open data, knowledge and service sharing, which could further provide tangible benefits to IUGS members.
- He put forward the following strategies and actions for the future development of IUGS: 1) Promoting and supporting regional/national activities of geoscientists and networking by direct and personal communication; 2) Creating new types of memberships comprised of universities, research institutes, foundations and government and industry agencies or any organizations that recognize the mission of IUGS and want to support IUGS activities; 3) Increasing the interactions between and roles of Affiliated Organizations, for example, joint annual or biennial meetings and regional meetings in addition to IGCs; 4) Establishing an elite membership of Union Fellow; 5) Setting up most prestigious awards such as “Nobel Prize in Geosciences” to recognise the world’s leading earth scientists, especially early career scientists and female scientists who have made outstanding contributions to science and to IUGS; 6) Supporting distinguished lecturers to deliver lectures, workshops, and other short training courses in underrepresented regions and countries and inviting more members from these regions to serve on our Council, EC, Commissions, Task groups and Affiliated Organizations; 7) Recognizing significant sciences advancements annually selected by Commissions and Affiliated Organizations, and these achievements could be introduced in *Episodes* and at annual EC Meeting or combined Special Annual Conferences.

- He commented that without a motivated, energetic, and highly efficient EC team and effective communication, any proposals would only stay on a wish list. To increase the efficiency and the quality of activities and services of the EC, Commissions, task groups, the EC team should take advantage of modern communication technologies such as web-service, social media, Google earth, Big Data and cloud computation. For example, electronic voting systems, online publication for Episodes, newsletters, reports and books, and open data and big data mining (knowledge base) for online information and decision-making services to all.
- He also put forward the following suggestions:
  - 1) A Financial Advisory Committee (FAC) be established for seeking new revenue from membership fees, conferences and meetings, publication royalty, donation and investments.
  - 2) A Scientific Committee (SC) be established for taking care of scientific issue including: (1) Nominating experts for IUGS – ICSU – UNESCO research program such as IGGP (IGCP & Geoparks); (2) Big Science Program (RFG, new initiatives), award selection (advancement of geosciences); (3) Prizes; (4) Distinguished lecturer; (5) IUGS Fellows; (6) New networks: Geo-museum, Geo-labs, Geo-training and educational sites.
  - 3) A Conference Committee be established for taking care conference related matters including: (1) IGC, Interim IGC, regional conferences, joint conferences, workshops; (2) Participation in other non-IUGS conferences; 3) sponsorship (supports and use of Logo etc.).
  - 4) The Publication committee (PC) be further enhanced to take care of scientific issue including *Episodes*, books series, E-bulletin, newsletters, year book, reports and contents for website and social media.
- He suggested the scope of the Union should cover all spectra of geosciences including geochemists and geophysics, mathematical Geoscientists and bio-geoscientists etc, rather than just geology. Consistency should be kept in all the IUGS documents when defining its scope.
- He finally called for the joint efforts from the EC, IUGS bodies, IUGS Adhering and Affiliated Organizations for the best future of IUGS.

#### **4.b. Past President's Report (Roland OBERHAENSLI)**

Roland Oberhaensli (RO) thanked CQ for his positive report and was pleased to see the continuation and further development of IUGS strategic views and scientific activities.

After stepping down from the IUGS presidency, he mainly concentrated on fulfilling representation of IUGS on tasks and occasions implemented beforehand.

RO joined the train geological excursion after the 35<sup>th</sup> IGC. He attended the ICSU-ISSC Extraordinary General Assembly in Oslo on October 23-25, 2016, during which ICSU members - unions and nations - had to vote and decide about a merger between ICSU and ISSC. Even though some unions, including GeoUnions, and some member countries expressed strong opposition about the merger, the final vote was a clear signal for a merger. There were still a lot of preparations to do with respect to finances, organizations, bureau and location of the secretariat.

He alerted the new IUGS EC about the way the logo and acronym of ICSU had changed. The new acronym ISC dropped "U" (unions) despite the fact that science was taking place within the unions and not with science administrations. Unions may face even a more difficult situation in the merged ISC. With respect to his former activities on the Future Earth Initiative, he said that it seemed impossible to motivate any publisher or the proper addressees in ICSU, and this matter remained pending.

The matters related to IGCP and UNESCO were well set. The new structure of IGCP within the framework of the new International Geoscience and Geoparks Programme (IGGP) as well as the responsibilities and election of the IGCP reviewer board were clearly defined in the IGGP Statutes. IUGS and the UNESCO colleagues had put forward an accord on the new IGCP review board which guaranteed a high scientific quality. RO thanked Patrick McKeever and other UNESCO colleagues for their work and support, and suggested IUGS should maintain a very active role in IGCP and Geoparks.

He was invited to attend the 14<sup>th</sup> Workshop on the International Project "Deep Processes and Metallogeny of Northern-Central-Eastern Asia" in Vladivostok, Russia on October 1-7, 2016 on behalf of IUGS and CGMW. The aim of attending the meeting was to promote the RFG initiative and to endorse cooperation on resources by showing global importance in sharing national data. He was also invited to attend the 135<sup>th</sup> anniversary of VSEGEI in St. Petersburg on February 1-2, 2017 on behalf of IUGS and CGMW to present the RFG thoughts of the IUGS NASIC group which would appear in a paper in Nature by the end of March.

The cooperation with the International Consortium on Landslides (ICL) continued and should be kept in the focus of IUGS since our union implemented the first Sendai Agreement during the 2nd G-Ever meeting 2013 in Sendai, Japan. A further MoU "ISDR-ICL Sendai Partnership 2015-2015 for Global Promotion of Understanding and Reducing Landslide Disaster Risk" was signed jointly with ICL during the World Conference on Disaster Risk Reduction Sendai, Japan, 2015. In the aftermath of these events, IUGS agreed to participate at the 4<sup>th</sup> World Landslide Forum (WLF) in Ljubljana. Former IUGS Vice President Marko Komac would chair a high rank panel meeting and he would act as honorary Chair. A paper was written and to be published in Volume 1 of the

proceeding volumes of the 4<sup>th</sup> WLF.

The Nomination Committee did so far not have any activities. He was compiling a mailing list of the members.

#### **4.c. Secretary General's Report (Stanley FINNEY)**

Since assuming office on 1 September 2016, SF had learned much about the many committees, commissions, task groups and initiatives that contributed greatly to the mission of IUGS. He also learned of several matters that required immediate attention from the IUGS Executive. Some of these greatly impacted both the internal operations and the external visibility of IUGS. It was his greatest pleasure to have circulated the ballots for ratification by IUGS of a GSSP (Global Stratotype Section and Point) Proposal for the base of the Chattian Stage (Oligocene Series; Paleogene System) and he commented that GSPPs were one of the most visible geostandards produced by groups within IUGS.

An IUGS Bureau Meeting was held in Beijing 11-12 November 2016. This provided an excellent opportunity for the new President, Secretary General, Treasurer and two Vice Presidents to meet the staff of the IUGS and learn the support that it provides to IUGS. The immediate problems addressed at the Bureau Meeting involved all aspects of the Publications Committee. The terms of the members of the PC ended at the Congress in Cape Town. The transfer of Episodes from India to Korea was of major concern. The IUGS website was not functioning, and the issuance of E-Bulletins had stopped. He learned of these problems during October, and the Bureau Meeting began to address them at the Bureau Meeting. The Bureau Meeting approved the appointment of Brian Marker as Chair of the Publications Committee and the members of the PC that he recommended (Stanley C. FINNEY, Peter BOBROWSKY, Fareduddin FAREEDUDDIN, Dolores PEREIRA and DAEKYO Cheong). The Bureau Meeting approved a resolution to invite Peter Bobrowsky to take up again the role of IUGS webmaster and to update the website. The Bureau Meeting approved the terms of office of the members of PC for the period of 2016-2018 with the understanding that a new PC will be appointed to a 4-year term for the period of 2018-2022. This approval was unanimous among the five EC members at the Bureau Meeting. The Bureau Meeting asked that an additional vote of approval that involved all members of the EC be made later in the Order of Business for today. Since the Bureau Meeting, he had consulted often with Brian Marker regarding the transfer of Episodes and with Peter Bobrowsky regarding management of the website.

Considerable time was devoted to developing the Agenda/Order of Business for the 71st IUGS EC Meeting here in Paris. The SG worked with the Secretariat on the call for Annual Reports, the distribution of Invitations for the EC meeting, and the development of the list of participants. This resulted in considerable correspondence with officers of various IUGS constituent bodies and Adhering and Affiliated Organizations. The SG made various arrangements with UNESCO, CGMW, and SGF for use of the facilities and

provision of refreshments. He expressed thanks to the above organizations for their support and help.

In January, the SG met with Nickolas Zouros to discuss strengthened ties between IUGS and the Global Geoparks Network. And the SG corresponded and met with former SG Jose Calvo at various times for his advice on matters related to the SG position. His counsel has been most valuable and greatly appreciated.

#### **4.d. Treasurer's Report (Hiroshi KITAZATO)**

Hiroshi Kitazato (HK) reported that by Dec. 31, 2016 the IUGS balance was USD 1,234,504.38, USD 742,547.21 of which was reserves in investment accounts. He reported that the total income and expenditures of IUGS in 2016 amounted to USD 597,039.88 and USD 499,247.90 respectively, contributing to a net income of USD 97,791.98. This reflected an relatively optimistic financial position. USD 48,814.95 was still in the IUGS bank account in Beijing. The Chinese Bank account would be closed after finishing IGC expenses and transfer the rest of budget to Japan.

The total revenue USD 597,039.88 included USD 419,704.67 for membership fees and USD 112,367.04 (EUR 100,000.00) from the de-investment of IUGS' reserve in Italy. The total expenditure was USD 499,247.90. He reported that there were some projects to be paid (Tectask) USD 3,000.00. And for IGC related expenditure, it was estimated that there would be USD 20,000.00 to be spent (the Emile Argand Award and other reimbursements).

The 35<sup>th</sup> IGC Organizing Committee may transfer USD 140,000.00 in maximum to IUGS, which should be deposited to the IUGS reserve in Italy.

HK suggested that external or extra revenues needed to be explored for keeping the IUGS budget in a stable condition. Each of IUGS internal bodies was requested to get external funds as sorts of "matching fund".

IUGS bank account for the year of 2016-2020:

Bank Name: The Bank of Tokyo-Mitsubishi UFJ, Ltd., Shibuya Meijidori Branch  
Swift Code: BOTKJPJT  
Address: 1-15-21 Shibuya, Shibuya-ku, Tokyo 150-0002, JAPAN  
Telephone: 03-3407-9731  
Beneficiary's Name: International Union of Geological Sciences  
Treasurer Hiroshi Kitazato  
Beneficiary's Address: Prof. Hiroshi Kitazato, Tokyo University of Marine Science  
and Technology, 4-5-7 Konan, Minato-ku, Tokyo 108-8477,  
JAPAN  
Beneficiary's Account Number: 470-3084164 (US\$)

SF commented that a report was received from the 35<sup>th</sup> IGC, saying that the local organizing committee was actively compiling conference proceeding documents and finalizing the financial and tax issues. It was expected that the capitation fees of the 35<sup>th</sup> would be transferred to IUGS in late 2017.

#### **4.e. Permanent Secretariat's Report (HE Qingcheng)**

He Qingcheng reported that he joined the Secretariat in September last year serving as the Director of the Secretariat. Under the guidance of the new EC, the Secretariat had been functioning professionally and efficiently in line with its due responsibilities and obligations.

The IUGS Secretariat had prepared for a series of meetings and significant events held during the 35<sup>th</sup> International Geological Congress in Cape Town, South African ( Aug. 25th to Sept. 2nd, 2016):

- Fourth Ordinary Session of the IUGS-IGC Council on Aug. 31st to Sept. 1st, 2016;
- Election of the new IUGS Executive Committee Members and new Nominating Committee;
- Bidding for the 37<sup>th</sup> IGC;
- IUGS Bureau Meeting on August 25, 2016 in Cape Town;
- 70<sup>th</sup> IUGS Executive Committee Meeting on Aug. 26-27, 2016;
- IUGS Reception and Awards Ceremony on Aug. 29, 2016;
- IUGS Meeting with Affiliated Organizations on Aug. 30, 2016;
- Handover Meeting Between the old and new IUGS Executive Committees on Sept. 2, 2016;
- Prepared the IUGS exhibition at the GeoExpo of the 35<sup>th</sup> IGC.

The Secretariat prepared for the 1<sup>st</sup> IUGS Bureau Meeting held in Beijing, China on Nov. 11-12, 2016. The Secretariat went through domestic formalities for approval of the organization of the Bureau Meeting in Beijing and for issuing formal invitation letters for participants; provided logistical and clerical service for the Bureau Meeting, including liaison, and minute taking; and prepared and distributed related documentation for the Bureau Meeting.

The Secretariat prepared for the 71<sup>st</sup> EC Meeting held in Paris, France on Feb. 15-18, 2017 under the guidance of the EC, in particular the Secretary General. The Secretariat prepared the list of participants; sent repeated reminders for Annual Reports from the IUGS bodies; prepared and distributed meeting documentation; uploaded all the annual reports submitted by the IUGS bodies to the IUGS Information management system for comments by EC members; Sent call for participation in the EC meeting in November and coordinated on meeting participants and logistical issues; and assembled financial requests from the IUGS bodies.

The Secretariat also updated the contact database and strengthened links with the IUGS bodies, improved the IUGS Information Management System, assisted in updating the membership status of the Adhering Organizations; distributed E-Bulletins monthly to over 16000 persons; designed name cards for all the new EC Members; designed and distributed New Year's E-Cards; assisted in preparations for transfer of the Treasurer's work.

#### **4.f. Optional Reports by Vice-Presidents and Councilors**

Kristine ASCH (KA), IUGS Vice President, expressed her delight to be present at the 71<sup>st</sup> EC Meeting and looked forward to working with all the meeting participants for IUGS in the next 4 years. KA was exploring the possibility of holding the next IUGS EC Meeting in Germany in negotiation with the German National Committee for IUGS. She had reviewed the allocated annual reports of the related IUGS bodies. She had been working with Edmund Nickless on the Resourcing Future Generations Initiative, encouraging young geoscientists, female geoscientists, geoscientists from developing countries to take part in the project. She had also been investigating the possibility of an IUGS-IUGG Joint Meeting.

Stephen Johnston (SJ), IUGS Councilor, mentioned that Canadian side was now applying to the Canadian government to upgrade its IUGS membership level from category 6 to category 8, and awaited feedback from the government.

Edmund Nickless (EN), IUGS Councilor, introduced that he attended a workshop in Brussels early February co-organized by the European Federation of Geologists and United Nations Economic Commission for Europe. During the meeting, he learned that the European Union was now funding a United Nations Development Programme in African, Caribbean and Pacific countries, with a total investment of 13.1 million Euros. The programme focused on industrial materials, such as sand, gravel, cement etc. vital for infrastructure in terms of economic development. He commented that IUGS had a number of external potential partners or on-going programmes to carry out cooperation in relevance to Resourcing Future Generations to utter "geo-voice" in those resource-related programmes.

### **5. Current Status Resourcing Future Generations**

#### **5.a. Progress of Advancing the RFG initiative (Edmund NICKLESS)**

Edmund Nickless (EN), IUGS Councilor and Chair of the IUGS New Activities Strategic Implementation Committee (NASIC), reported the progress in advancing the Resourcing Future Generations (RFG) Initiative. The major RFG activities included: (1) Announced the RFG initiative in Episodes; (2) Produced a 4-page brochure on RFG; (3) Organised symposia and Town Hall events; (4) Promoted RFG on IUGS and other



websites; (5) Organised a symposium and launched a White Paper at China Mining (October 2014); (6) Held a workshop in Namibia (July 2015) supported by the ICSU grant and published an 80-page report; (7) Issued two open calls for top-up research grant funds.

The first open call (for top up research grant proposals) was issued in April 2016 and closed at the end of May 2016. A total of 11 applications were received, 4 from Australia, 1 from Southeast Asia, 3 from Africa (2 from South Africa) and 3 from Europe. 6 applications were funded as listed in the Second Open call. The second open call was issued in September 2016. The initial closing date ended in December 2016 by when 5 applications had been received. The closing date was later extended to 31 January 2017 by when 21 applications were received, 8 on the final day, 4 from South East Asia (including 2 from China), 8 from Africa (including 2 from South Africa), 6 from Europe, 1 from North America, 1 from South America and 1 from Australia.

Applicants included post graduates, early career and established university researchers as well as staff of government agencies. The award was notified by 1 March 2017, and the work was to be completed and reported by 30 September 2017. The total sum sought under the call was USD 76,600. 8 applications totalling \$26.6k were judged α3 or better. He commented that more funds were needed to reflect growing level of interest and to launch a 3<sup>rd</sup> grants round, and two applications were already in hand.

Four session proposals were submitted to RFG 2018 Conference:

- Exploration under deep cover *Convenors: Ray Durrheim (University of Witwatersrand), Richard Blewett (Geosciences Australia) & Qiuming Cheng (York University)*
- Ensuring the supply of critical materials to meet the UN Sustainable Development Goals *Convenors: Larry Meinert (USGS), Gavin Mudd (Monash) & Damien Giurco (University of Technology Sydney)*
- The International Resource Panel and the emergence of a science-policy consensus on mineral resource governance *Convenors: Saleem Ali (University of Delaware), Maria Baptista & Janet Salem (UNEP)*
- Learning from empowering young leaders: early-career geoscientists implementing sustainable development *Convenors – Joel Gill (Geology for Global Development) Elyvin Nkhonjera Chawinga (Oxfam, Zambia) & Cecilia Mukosi Ndivhuwo (Geological Council of South Africa)*

He reported that the deadline for submission of session proposals was 30 April 2017, decision on session submissions was expected shortly after, and 100 session proposals were presently on website and another 30 to 50 in preparation. He commented that a particular emphasis should be paid on involving younger people, and those who had been funded under the Open Calls should be encouraged to be present at the event.

#### **5.b. RFG 2018 in Vancouver (Stephen JOHNSTON)**

Stephen Johnston (SJ), IUGS Councilor, reported that the RFG 2018 was to be organized in Vancouver, Canada on June 16-21, 2018. Apart from IUGS being one of the organizing partner, four Canadian organizations partnering to deliver RFG 2018: Canadian Institute of Mining and Metallurgy (CIM) providing technical leadership and organizational and significant financial support; Geological Association of Canada (GAC) and Mineralogical Association of Canada (MAC) - the annual GAC-MAC conference to be held as part of RFG; and Canadian Federation of Earth Sciences (CFES) - the umbrella organization for earth science in Canada. RFG 2018 currently had 28 technical partners, the number of which was still growing.

The organizational team of RFG 2018 was complete and very well functioning, including the Steering Committee, Programme Committee and Conference Management. An International Advisory Panel was established. The timelines for the financial, technical, marketing and social aspects of the Conference was established and being finalized. Approximately 100 sessions were already submitted and around 50 were in preparation, covering the main themes Earth, Energy, Minerals, Water, Resources and Society. The call for sessions was open until April 30, 2017 and the total targeted number of sessions amounted to 150.

A minimum of 4 plenary sessions were being planned, with variable formats, multiple diverse speakers (including youth) and public lectures on key themes. Major efforts had been made to resonate with young people and seek broad participation from young professionals, graduate and undergraduate students, high school students. The connection to YES was established, and a variety of publicity-outreach approaches were being considered to attract young people. Marketing of the Conference had been contracted to AMP and Sensov, and comprehensive market assessment, target identification and strategy were being developed. The Conference were developing publicity and outreach through public lectures, newsletter, website, social media.

Secretary General said that the draft RFG MOU would be reviewed during the closed session of the EC Meeting and then sent to the local organizing committee for modifications.

## **6. IUGS Committees**

### **6.a. Publications Committee**

#### **6.a.1. EC Approval of IUGS Bureau Recommendation of Membership, Term, Chair, and Webmaster**

Motion to approve the Publications Committee (2016-2018) - Brian Marker (Chairman), Stanley C. Finney, Peter Bobrowsky, Fareeduddin Fareeduddin, Dolores Pereira and Daekyo Cheong, and to appoint Peter Bobrowsky to serve as the Webmaster.

## Approved

### 6.a.2. Publications Committee Report (Dolores PEREIRA)

Dolores Pereira, member of the Publications Committee, reported that the Publications Committee for the term of 2012-2016 stood down at the 35<sup>th</sup> IGC (September 2016). The Chairman continued day-to-day tasks while new Committee was being considered. A new Publications Committee convened in November based on continuity and transition, including: Dr. Brian Marker (Chairman), Professor Stan Finney (representing the IUGS Executive), Professor M. Dolores Pereira, Professor Daekyo Cheong (Editor of Episodes from 1st January 2017), Dr. Fareeduddin (Editor of Episodes until 31st December 2016) and Dr. Peter Bobrowsky (Webmaster). The new Committee was appointed until the end of 2018, implementing the new principle to have a 2 year offset between the PC changing and the Executive changing to reduce future disruptions.

In March 2016, the EC decided that publication of Episodes would move from the Geological Society of India to the Geological Society of Korea (GSK) starting from 1st January 2017. In June 2016, the impact factor for 2015 published was 3.26 - the highest in the history of the journal. The Memorandum of Understanding with GSK was signed on 28th August 2016 and handover of materials began on 1st December 2016. The final issue from India was published in December 2016. The arrangements were being made for transfer of *Episodes* website to GSK.

In early 2016, the EC decided to move the website from Canada to China, and in late May 2016, the webmaster in Canada was discharged. The website was not updated between March and November 2016 and in November 2016 the new Executive reappointed the former Webmaster. Intensive work was being undertaken to update the website.

Books published for IUGS by the Geological Society (London) included:

**(1) In preparation:**

Archaean Cratons: New Insights on Old Rocks

Developments in Engineering Geology

Radon, Health and Natural Hazards

The Permian Timescale

International Stone Designation

**(2) Online-first publication stage:**

Devonian climate, sea-level and evolutionary events

Geohazards in Indonesia: Earth Science for Disaster Risk Reduction

History of Geoscience: Celebrating 50 Years of INHIGEO

**(3) Nearly complete for printing:**

River dominated shelf sediments of Asian seas

Supercontinent Cycles Through Earth History: Possibilities and Geodynamic

### 6.a.3. Discussion of Transfer of *Episodes*

SF commented that the transfer of *Episodes* from the Geological Society of India to the Geological Society of Korea had been a major concern of the new EC. Brian Marker had done incredible work for the transfer of *Episodes* and the March issue of *Episodes* – the first issue to be published by the Geological Society of Korea. The Issue was now totally complete and edited in advance.

SF mentioned that in the MoU between IUGS and GSK that GSK was responsible for providing online publication system for *Episodes*. The new EC learned about the Agreement between GSK and Springer concerning online publication of *Episodes* and had written a letter to the Korean side, clearly stating that the Springer Agreement for the publication of *Episodes* was totally unacceptable to IUGS for there were a number of contradictions between the IUGS-GSK MoU and the GSK-Springer Agreement. For instance, the Springer Agreement stated that GSK was the owner of *Episodes*, while in fact *Episodes* is the flagship publication of IUGS as clearly stated in the MoU between IUGS and GSK. Upon the request of the EC, GSK had arranged another company for the online publication of *Episodes* with an approximately payment of USD 6,000. SF pointed out the majority of the IUGS allocation to *Episodes* was planned to be used by GSK to cover editors' salary and online publication system payment.

SF introduced that whether to print hardcopies of *Episodes* was a major concern of the Bureau Meeting held the previous day. In accordance with the Amendments to the IUGS-GSK MoU, in the next 24 months GSK would print hard copies of *Episodes* on request and revenues gained shall be shared between GSK (two thirds) and IUGS (one third). The Bureau raised the question whether hardcopies of *Episodes* were really needed since free electronic versions could be obtained online. But it was also suggested during discussions at the Bureau Meeting that IUGS could have a certain number of hardcopies of *Episodes* for the EC and Secretariat to distribute at major international conferences or events for outreach purpose. SF said that whether to print hardcopies remained an issue that was open for discussion and consideration of the EC in terms of budget allocation.

SF especially thanked Brian Marker for the incredible dedication and attention he had given to make sure the transfer of *Episodes* is a success, and Fareeduddin from the Geological Society of India for the great support he has rendered.

Dolores Pereira and Roland Oberhaensli commented that the main idea of the MoU between GSK and IUGS originally focused on online publication, and the Amendments to the MoU were to address the lack of items in the MoU dealing with hardcopies of *Episodes*.

SF suggested that details about hardcopies of *Episodes* be further discussed with the managing and scientific editors of *Episodes* at the coming Publications Committee Meeting to be held in April.

#### **6.a.4. Discussion of IUGS Website**

SF said that the IUGS website was being updated since the appointment of the Webmaster. Further efforts had to be made to modify the format and improve the content of the website. He would continue to communicate with the Treasurer Hiroshi Kitazato, Webmaster Peter Bobrowsky and Chen Zhu from the Secretariat about the website.

Dolores Pereira suggested that the website format be redesigned to make it easier to find relevant information and documents, and the search function be added to the website.

CQ said that there were both technical and content aspects of the website. He suggested that Chen Zhu from the Secretariat help with the technical aspect of the website and the Webmaster Peter Bobrowsky deal with the content aspect of the website, for instance improving the website structure and updating the website.

It was agreed that the Publications Committee should be consulted as to whether the website should be redesigned and a budget be put forward for the consideration of the EC.

RO explained the rationale for decision on the website by the previous EC was to have the IUGS website in a modern set-up. He suggested that a website template could be provided to IGCP projects for reference to save unnecessary costs for each IGCP project that applies for financial support for webpage design.

CQ commented that the IUGS website could be used as both a management system and a public promotion platform.

#### **6.a.5. E-Bulletin and Social Media: Status, Selection of New Editor**

SF introduced that Amel Barich had been producing the IUGS E-bulletin and developing the IUGS social media. But she had stepped away from the above tasks and only a few E-bulletins were produced after the 35<sup>th</sup> IGC. Due to her personal reasons and medical issues, she had formally asked to step down from these responsibilities. Another EC member should take on this role to edit E-bulletin each month. Several 8-level IUGS members had been asking what had happened to the E-bulletin, which was previously mass-emailed to everyone. The Bulletin was even more powerful than the website to increase IUGS' visibility in the international geoscience community. The current format of the E-bulletin with long-text articles was not easy for readers to go through. The E-bulletin format of the Geological Society of America was recommended. The E-bulletin editor

should have the experience and expertise to solicit and edit significant information for the E-bulletin.

Dolores Pereira, reported that IUGS had promoted itself through various social media, such as Facebook (3920 followers), Twitter (218 followers), LinkedIn (466 followers) and Google plus (13 followers).

For future communication strategy:

Social Media: (1) keep growing audience in all existing platforms using targeted and impactful content; (2) explore new channels to reach the maximum of the IUGS international community; (3) use more audiovisual material to promote the IUGS activities.

E-Bulletin: (1) insure a regular content flow; (2) reestablish regularity in terms of issuing the monthly e-bulletins and rethink the e-bulletin format.

SF encouraged IUGS constituent bodies and Affiliated Organizations to provide IUGS-related articles to be posted on the IUGS facebook website.

#### **6.b. Strategic Implementation Committee (NASIC) (Edmund NICKLESS)**

Edmund Nickless, Chair of NASIC, NASIC was outgrowth of the new strategic plan agreed in 2012 and was established in February 2013 to develop Resourcing Future Generations initiative. The Initial scope of RFG was to include minerals, energy and water, all with implications on land-use, and focus was on metals and minerals following consultation with industry. He introduced that RFG was a problem solving initiative, looking forward over 20 years or more, seeking a collaborative approach (international, multi-disciplinary, cross-sector) and focusing on research, data mining, technical development, outreach and education.

NASIC had announced the RFG initiative in *Episodes*, produced a 4-page brochure on RFG, organised symposia and Town Hall events, promoted RFG on IUGS and other websites, organised a symposium and launched a White Paper at China Mining (October 2014), held a workshop in Namibia (July 2015) and published an 80-page report, and issued two Calls for top-up research grant funds. NASIC raised awareness among some external publics, linked to IUGG and other geo-unions, attracted financial support from ICSU and UNESCO, reached out to the social sciences and engineers and made links to the UNEP International Resources Panel and Horizon 2020 Forum project.

He suggested that RGF be embedded in the work of IUGS as a whole and participate in the EGU (Vienna, April 2017), Mines and Money (London, November 2017), RFG2018 (Vancouver, June 2018). More funding needed to be attracted for the initiative.

NASIC should consider whether the current focus on large-scale mining of metals and minerals too narrow and whether the emphasis should be shifted to looking at

delivery of the Sustainable Development goals as a whole and building infrastructure.

The possible ways for obtaining external funds for the RFG Initiative were discussed.

### **6.c. Nominating Committee (Roland OBERHAENSLI)**

RO reported that the Nominating Committee would take up the responsibilities to find candidates for the positions in the next EC, PC and other relevant IUGS committees well in advance under the leadership and guidance of the IUGS Council. The NC intended to involve more young geoscientists.

### **6.d. Finance Committee - Formation of New Committee (William CAVAZZA)**

William Cavazza, Chair of the last Finance Committee, reported that the Mandate of the Finance Committee prescribed in the IUGS Statutes and Bylaws was "The Finance Committee ... plan(s) for the finances of the Union, evaluate proposals for the independent auditing of the Union for Council, and advise(s) the Executive Committee on the management of funds and improving the funding of the Union." "Its primary roles are to identify external financial opportunities for the IUGS and to propose to the Executive Committee ways to improve IUGS financial operations, including: (1) the allocation of funds in relation to the strategic priorities and missions adopted by the Executive Committee; and (2) overseeing the conduct of an independent external audit of IUGS finances. The Finance Committee shall present a report ... (to) the IUGS Council every four years before the election of a new Executive Committee." He commented that the Finance Committee should be a permanent body of IUGS and should last a 4 year term.

The Finance Committee reviewed the following documents: Treasurer's Reports 2012-2016, Financial Committee Report (2012, 2016), Strategic Planning Committee Report (2012), Mid-term Vision and Strategic Action Plan (2004), International Earth Sciences in the 21st Century (2000) and Executive Committee meetings minutes. All these documents had been uploaded on the website.

In accordance with "International Earth Sciences in the 21<sup>st</sup> Century – IUGS Strategic Action Plan (2000)", " 4 recommendations were made to broaden the funding base of the IUGS, including (i) Capitation fees; (ii) Investment in financial assets; (iii) Royalties of commercial sales of IUGS publications; (iv) Re-establishment of the Advisory Board for Finance.

Financial recommendations by the last Finance Committee included: (i) financial investments could be improved; (ii) viable avenues for improving IUGS finances: publications, foundation, IGC; (iii) new EC should be made familiar with previous documents on financial matters; (iv) new EC should consider appointing the new Finance Committee right away with clear goals.

It was suggested that more funds be sought from industry as external revenues of IUGS and IUGS National Committees be motivated for more contributions and collaboration. When seeking for external revenues, no matter from industries or from non-profit organizations, attractive products or activities should be offered from IUGS groups for exchange of donations.

#### **6.e. Conference Committee - Appointment of EC Member to Develop (CHENG Qiuming)**

CQ introduced that the idea of the Conference Committee was collected from colleagues and his own experience serving as Vice President and President of IAMG. From the IAMG experience, organizing meetings always generate positive returns. Organizing meetings could not only increase visibility and reputation but also generate income. IUGS currently had IGCs every four years, RFG 2018 Conference and other business meetings. Other matters related to conferences included sponsorship of conferences, including the use of logo and asking for financial support. In this context, a Conference Committee with expertise and experience was suggested to be formed to take care of meeting issues.

Motion to approve the formation of the Conference Committee and develop its structure later

**Approved**

#### **6.f. Scientific Committee - Appointment of EC Member to Develop (CHENG Qiuming)**

CQ explained the rationale for the formation of a Scientific Committee (SC). IUGS currently had quite a few scientific programmes, such as IGCP, joint Geoparks, RFG and so on. Other related scientific activities and tasks included award selection, prizes, IUGS Fellows, distinguished lecturers, recommendation of evaluation experts etc.

It was suggested more clarifications be made on the responsibilities of the Scientific Committee. Concerns were expressed about the potential overlapping roles between the EC and the SC and additional bureaucracy the SC might bring. Terms of reference of the two proposed Committees should be proposed, including detailed structures and responsibilities.

Motion to decide on the formation of the Scientific Committee at the closed session of the EC Meeting

**Accepted**

### **7. IUGS - UNESCO**



## **7.a. Earth Sciences at UNESCO and 7.b. IUGS-UNESCO (Patrick MC KEEVER)**

Patrick McKeever introduced that IGCP was now entering its 46th year, initially started as a programme promoting the correlation of geology across the world in the wake of the plate tectonics revolution. IGCP promoted collaborative projects with a special emphasis on the benefit to society, capacity-building, and the advancement and sharing of knowledge. While in the early years IGCP provided an important platform for cooperation between scientists from the former western and eastern blocs, today its emphasis was on N-S cooperation. IGCP operated by providing small “seed funding” grants, typically between \$5,000 - \$10,000 p.a. across 5 years, donated by UNESCO, IUGS and extra-budgetary sources.

In 2015, the General Conference of UNESCO at its 38th session adopted the new IGGP – the International Geoscience and Geoparks Programme. As part of this reform, a new Scientific Board was created. They worked remotely and assessed project reports and new project proposals. A new IGCP Council replaced the former Theme Leaders and was appointed jointly by the DG of UNESCO and President of IUGS:

Earth Resources: BRIGITTE VLASWINKEL, The Netherlands

Global Change: MARIA JULIA ORGEIRA, Argentina

Geohazards: ALIK ISMAIL-ZADEH, Azerbaijan

Hydrogeology: YONGJE KIM, Republic of Korea

Geodynamics: NELLIA MUTEMERI, Zimbabwe

Other: GUY NARBONNE, Canada

In 2016, there were 26 Projects in total. 22 Projects received financial support from IUGS and UNESCO and 4 projects were on extended terms. 2016 Finances included: 15,302 USD from UNESCO for meeting, 66,500 USD from UNESCO for projects and 60,000 USD from IUGS. Funding levels were group as follows: 10,000 USD (Level I), 8,000 USD (Level II), 6,000 USD (Level III), 3,500 USD (Level IV) and 3000 USD (Level V).

He introduced that the Earth Science & Geohazard Risk Reduction Section at UNESCO was responsible for the International Geoscience and Geoparks Programme. In 2016, the UNESCO Global Geoparks Council examined 16 new applications and 2 extension applications. They decided to approve the following as UNESCO Global Geoparks:

Arxan, China

Causses du Quercy, France

Cheongsong, Republic of Korea

Conmarca Minera, Hidalgo, Mexico

Keketuohai, China

Las Loras, Spain  
Mixteca Alta, Mexico  
Qeshm, Iran

Leiqiong & Zigong (China) were extended and 22 others were revalidated. These decisions would go forward to the spring session of UNESCO's Executive Board for endorsement.

During the period October-November 2016, UNESCO received 15 new applications from areas wishing to become UNESCO Global Geoparks plus 2 extension applications. Summary sheets of all 17 applications were put online for a three month period from February 3 – May 3 for Member States to view. This presentation of the 17 applications forms part of this “intergovernmental check.” The geological sections of all 17 applications were being independently evaluated through the global geoscience networks of IUGS. So long as no objections were received, all the applications would be subject to a field inspection between May 15 – August 15. An additional 33 UNESCO Global Geoparks would also be revalidated during this period.

He introduced the geohazard risk reduction at UNESCO:

**International Platform on Earthquake Early Warning Systems (IP-EEWS):** UNESCO promotes scientific knowledge exchange and international cooperation for the establishment of earthquake early warning systems worldwide.

**School safety assessments using the UNESCO-VISUS methodology:** UNESCO supports Member States in building capacities for assessing and upgrading the safety of their educational facilities through technical workshops, hands-on trainings and research activities.

**Enhancing Disaster Risk Reduction and Strengthening Community Awareness through UNESCO Designated Sites:** UNESCO encourages the identification of risks, protection from different hazards and the preservation of UNESCO-designated sites and their communities.

**A holistic approach towards a disaster resilient built environment:** UNESCO supports Member States in capacity building of the local construction sector through workshops, trainings and publication of guidelines about the important role of construction to create a disaster resilient environment.

#### **7.c. IUGS-GEOPARKS NETWORK, EC Representative (Stanley FINNEY)**

SF reported that a representative from the new EC should be appointed to the UNESCO Global Geopark Programme to take over the role from Marko Komac, former IUGS Vice President. The main tasks of the representative were recommendation of

reviewers for geoparks proposals to analyze their scientific significance very quickly, attendance at UNESCO Geoparks Council Meeting, and participation in activities of Global Geoparks Network and European Geoparks Network.

#### **7.c.1. IUGS Geopark Award for Promoting Geological Research**

SF introduced that there was an award of the Global Geoparks Network to recognize the best practices in geoparks. It was suggested that IUGS give an IUGS geopark award for promoting geological research with a certificate and a small sum of money.

Motion to approve the IUGS EC representative to UNESCO Global Geoparks Programme to come up with a proposal of the IUGS Geopark Award to be presented at the next Bureau or EC Meetings

**Accepted with one objection and an abstention**

#### **7.d. International Consortium on Landslides (ICL) (Roland OBERHAENSLI)**

RO reported that IUGS and ICL had implemented the first Sendai Agreement during the 2<sup>nd</sup> G-Ever in Sendai, Japan in 2013. A further MoU “ISDR-ICL Sendai Partnership 2015-2015 for Global Promotion of Understanding and Reducing Landslide Disaster Risk” was signed jointly with ICL during the World Conference on Disaster Risk Reduction Sendai, Japan, 2015. A strong relation with ICL was formed. At the 35<sup>th</sup> IGC, a new IUGS Task Group on Geohazards was officially established. RO suggested that the new Task Groups be given tasks to further maintain and develop cooperation with ICL. RO would participate in the 4<sup>th</sup> WLF and publish a paper in the proceeding volumes of the 4<sup>th</sup> WLF about IUGS’ role in geohazards risk reduction.

#### **7.e. Other Possibilities (Geolabs, Geomuseums, Geotraining Sites) (CHENG Qiuming)**

CQ proposed the possibilities to explore other programmes similar to geoparks, such as geolabs, geomuseums and geotraining sites. The idea behind the suggestion was to establish a global network of geological laboratories, museums, and training sites with high quality recognized by IUGS and facilitate data and resources sharing within the network. The intended network would be self-funded like geoparks.

The possibilities of establishing geolabs, geomuseums, geotraining sites were left to the participants for further discussion and consideration.

### **8. IUGS Membership**

#### **8.a. Report on Membership Status (Hiroshi KITAZATO)**

HK reported that in the year of 2016, among the 120 IUGS Adhering Organizations (AOs), 74 were in active status and 46 were in inactive status. Rwanda applied for new IUGS membership. While in the year 2015, 71 were in active status and 49 were in inactive status. Among the 74 active members, 5 members were in category 8, 4 members in category 7, 2 members in category 6. In 2016, Latvia, Bulgaria, Chile, Uruguay and Colombia were reinstated from inactive into active status. Inactive members were mainly distributed in South-east Asia, middle-east Asia, Africa and middle to south America. 194 countries exist in the world. Small island countries are mostly located outside of IUGS network, even though they face serious global problems, such as global warming, geohazards, deep-sea mining and others. It was suggested that IUGS communicate with those countries which need to get help from international expertise and take a task as a strong leader in these fields.

He reported that the invoice for each member would be issued in early March, 2017. 2017 unit fee will be raised according to US CP Index.

US CPI total = 2.1% inflation

Unit rate for 2016 = 597 USD

Unit rate for 2017:  $597 \times 1.021 = 609.537$  USD = 610 USD

It was suggested that efforts be made to reinstate more IUGS members from inactive to active status.

### **8.b. Communications with Adhering Members**

In order to enhance communication with IUGS Adhering Members, SF said that he would write to each Adhering Organization a letter, which would include a list of geologists from that member country or region who either serve on IUGS bodies and groups or participate in IGCP projects, and GSSPs located in that country or region, and IUGS-related meetings held in that country or region. The purpose of doing this was to show the support IUGS members had rendered to the union and the benefits IUGS members receive from IUGS. IUGS commissions and task groups were asked to provide related information. Through the above substantial work, communication and interaction between IUGS and its members were expected to be reinforced.

### **8.c. Strategy for Increasing Memberships and Membership Levels**

A various strategies had been explored to increase IUGS membership and membership levels, including reducing the membership fee unit for Category I members, reasonably providing more rights to members with high-level categories, explicitly explaining the benefits for joining IUGS and its scientific activities, adopting targeted measures to increase middle-category and high-category members etc.

CQ commented that there were two possible options to increase membership fees. One option was to increase the existing membership fees from IUGS Adhering

Organizations, and the other option was to explore new types of memberships, for instance to include Affiliated Organization as a new type of membership. CQ said that he received suggestions from Affiliated Organizations to play more roles in supporting IUGS, with more rights, more participation and more joint projects.

It was suggested that Adhering Organizations should be contacted and consulted with the idea of enlargement of membership. It was suggested that IUGS should offer tangible benefits of being an IUGS member and clearly state the relevance and importance of IUGS scientific activities to the society as the basic outreach information to increase membership.

## **9. EuroGeosurveys (Luca DEMICHELI)**

Luca Demicheli, Secretary General of EuroGeoSurveys (EGS), introduced that EuroGeoSurveys- the Geological Survey of Europe, represented 37 geological surveys in Europe. He stressed that EuroGeoSurveys was not an association, but an international organization. The strategic vision of EGS was towards a European geological service, carrying out joint research with impact at EC policy level, harmonizing and sharing pan-European geological data, and sharing knowledge, capacities and infrastructure. The

European geoscientific research network GEO-ERA was launched and GeoERA call for proposals included four themes geo-energy, groundwater, raw materials and information platform. EGS produced unique pan-European datasets (mineral resources) and undertaking the ProSUM project. There was now a home for pan-European geological datasets and services from past and coming projects. Data from 13 projects and from thousands of national datasets were already available on a common platform with more than 600 data layers, covering Energy, Groundwater, Mineral Resources, Geohazards and Soil, but many others are not yet there. An international cooperation EGS-OAGS project with 25 million Euros (28 million USD) started. A special symposium "PanAfGeo: a major initiative to strengthen the geoscientific public sector in Africa" was convened during the 35<sup>th</sup> IGC.

FORAM, the largest collaborative effort for raw materials strategy cooperation on a global level so far, was developing and setting up an EU-based platform of international experts and stakeholders that would advance the idea of a World Forum on Raw Materials and enhance the international cooperation on raw material policies and investments. FORAM will contribute to: a more joint and coherent approach towards raw materials policies and investments worldwide; make the current complex maze of existing raw material related initiatives more effective; fair and sustainable access to primary and secondary raw materials worldwide to maximize resource-efficiency and circularity.

IUGS was invited to participate in the FORAM programme. Possibility was explored to invite IUGS as a member of the Advisory Board of FOR AM.

## **10. Commission for Geological Map of the World (Philippe ROSSI)**

Philippe Rossi, President of Commission for Geological Map of the World (CGMW), introduced that the Commission for the Geological Map of the World (CGMW) was first and foremost a map maker organization. It was responsible for coordinating, designing and publishing solid Earth Sciences maps of continents, oceans, major regions of the Earth and for developing cartography in the solid Earth Sciences. CGMW was organized following a scheme of thematic, continental & oceanic Sub commissions.

CGMW maps were carried out in partnership with: (1) CGMW Statutory members that are national organizations responsible for solid earth and ocean science mapping of all the countries or territories (i.e. Geol. Surveys) of the World; (2) Associate members, public or private organizations, interested in and supportive of the CGMW's work;(3) in close coordination and with the support of UNESCO, IUGS and sponsors. The primary data and workforce for CGMW mapping programs was provided by Geological Surveys and the Academia. Its aim was to facilitate the circulation of the scientific information in order to ensure the best quality information provided in the syntheses.

CGMW produced Structural map of the Western Pacific Ocean (1:20M), Structural map of the Southern China Sea (1:3M), Mineral Resources and Environment Educational booklet (2016), the Gondwana Map, Tectonic Map of South America (2nd ed.), the Geological Map of Africa (1:10M scale) edition 2016, Seismotectonic Map of Africa, Eastern Asia Earthquake and Volcanic Hazards Information Map (2016) etc. CGMW maps were coherent synthesis of state-of-the-art scientific information in order to ensure the best quality deliverable for end users: companies, students and teachers in college and university.

The future important projects included the Structural Map of the World Ocean, Tectonic Map of Antarctica (2nd edition), Geological Map of South America 1:5 M (3rd edition), International Quaternary Map of Europe (IQUAME) project etc.

## **11. IUGS Contact with OneGeology (François ROBIDA)**

François Robida, OneGeology Board Member, reported that 2017 was the 10<sup>th</sup> anniversary of OneGeology, which was initiated in 2007 by Geological Survey Organisations from around the globe: national and state/provincial/territorial. As a voluntary initiative, OneGeology raised the level of geological survey information delivery across the world and made geology a global leader in the field of SDI & an exemplar of a scientific community working together. OneGeology spawned many projects and initiatives across the world, some very large (i.e. continental initiatives as OneG-E in Europe, US-GIN and CCOP project in Asia).

In Oct 2013 OneGeology Consortium was formed with these objectives: (1) To be the provider of geoscience data globally; (2) To ensure an exchange of know-how and skills

so all can participate; (3) Use of the global profile of OneGeology to increase awareness of the geosciences and their relevance (in contemporary society). OneGeology was formally supported by UNESCO, IUGS, ICSU, GEO and officially recognised as being the global model for open geo-data sharing. 189 member organisations from 121 countries were involved in the project. IUGS was a full Principal Member and strong partnerships were established with CGMW and CGI.

Several workshops and events were organized at the 35<sup>th</sup> IGC in Cape Town August 28<sup>th</sup> -September 2<sup>nd</sup>, 2016, including a hands-on workshop focusing on Africa, training together with IUGS/CGI using OneGeology cookbooks, publication of 3720 geological maps at 1:200 000 by the CIS (Commonwealth of Independent States) on OneG portal. Other activities included organization of Workshop for South America at the occasion of Brazilian Geological Congress, update of OneG cookbooks to support the implementation of newly released GeoSciML standard, upgrade of European OneG maps services to fulfill new GeoSciML standards and support of multithematic datasets in OneG portal. New actions for 2017 included that new portal being released soon and OneGeology going 3D.

## **12. International Council of Science (ICSU) (CHENG Qiuming)**

CQ reported that IUGS attached great importance to ICSU. As a member and affiliated union with the voting right, IUGS carried out long-term cooperation with ICSU. IUGS had received a number of grants from ICSU since 2010 for workshops and RFG initiative. ICSU 2016 call for proposal came too late and IUGS did not submit any proposal in 2016. 3 grants were approved after evaluation by ICSU for 2016. One project was led by the International Union of Biological Sciences (IUBS), with IUGS being a partner. He suggested that IUGS proactively contact ICSU for future cooperation. The criteria of ICSU projects were innovation, international and multi-disciplinary work. IUGS should make efforts to facilitate more multi-disciplinary projects within the union and apply for more ICSU projects.

SF reported that the EC received a request from the International Union of Biological Sciences to ask IUGS to be a co-sponsor of the programme when applying for funding. The project was funded by ICSU with 300,000 USD. IUBS approached IUGS now to participate in that programme. IUGS was asked to appoint a representative to the programme with related travel expenses being covered by IUGS.

## **13. IUGS-GeoUnions-IUGG Relations (CHENG Qiuming and Roland OBERHAENSLI)**

RO commented that GeoUnions was a good model to let all the geoscience-related unions have a better voice within ICSU. There was ample cooperation and coordination within GeoUnions. It was suggested that the new EC continue close connections and collaboration with GeoUnions. GeoUnions was frustrated that ICSU had dropped the letter "U" from its acronym and changed its logo without sufficient discussions within the union

itself.

CQ reported that representative of GeoUnions would meet and develop collective ideas about how to deal with the decreasing role of science unions in ICSU before the ICSU General Assembly in Taipei.

### **13.a. Joint IUGS-IUGG Meeting (Kristine ASCH)**

KA introduced that discussions were ongoing for a joint IUGS-IUGG conference. Each of the two unions met every 4 years for a large-scale conference, and the two conferences were one year apart. IUGS decided an IGC now 8 years in advance and IUGG decided 4 years in advance. There were both advantages and disadvantages for a joint IUGS-IUGG meeting. The topic of a joint IUGS-IUGG meeting was discussed at the 35<sup>th</sup> IGC. Signals from the IUGS and IUGG leader groups were needed to see whether further efforts should be made to push forward a joint conference. The German National Committee was approached with this idea. A joint conference in the nearest future would possibly take place in 2027 or 2028 because the 37<sup>th</sup> IGC in 2024 was decided. With the consideration that a joint IUGS-IUGG conference every four years was a very complicated issue, a suggestion was made to have a smaller meeting in between the Congresses dedicated to a specific subject that both unions were interested, for instance Resourcing Future Generations, marine domain etc.

RO explained that in today's research, there was no more strong division between geology and geophysics, but more intensive interaction among geology, geophysics, geochemistry and other related disciplines. That was the reason for the idea of a joint IUGS-IUGG meeting.

William Cavazza commented that there were some overlapping fields between IUGS and IUGG but also a number of fields that did not have much common with each other. He said that IGC was already an internationally-renowned brand name and careful thoughts should be given when any change had to be made. He was strongly in favor of the idea of interim-IGC conferences.

SF commented that at each IGC, apart from the scientific programme, IUGS Council Meeting, EC meeting, and business meetings of IUGS bodies were held. In recent years, the duration of an IGC had been shortened to save costs but led to overlapping business meetings of IUGS constituent groups during the IGC. In this circumstance, bringing in another union would increase those problems tremendously, especially keeping the conference a week-long event.

Edmund Nickless cautioned on the use of name and supported that IGC was already a brand name. He was in favor of inter-congress event.

HK expressed support of the conference theme of marine domain, which would



increase the diversity of IUGS.

RO commented that the two unions had been officially contacted and this joint meeting was in principle welcomed.

CQ commented that strategic plans and procedures should be developed to standardize the interim meetings. A more concrete proposal on a joint IUGS-IUGG meeting was needed.

SF suggested that we take small steps in a joint IUGS-IUGG meeting.

Stephen Johnston commented that RFG 2018 Conference was a bottom-up process and IUGS should be very careful about trying to do this in a top-down way.

The topic would be further discussed at the closed session of the EC Meeting.

## **14. International Geological Congress (IGC)**

### **14.a. 36th IGC in 2020 (New Delhi) (Shailesh NAYAK)**

S. Nayak, President of the 36<sup>th</sup> IGC, reported that the theme of the 36<sup>th</sup> IGC was “Geosciences – the basic science for a sustainable future”. Appropriate Authority comprised Secretary, Ministry of Mines in Chair and two Co-chairs, the Secretary, Ministry of Earth Sciences and President of Indian National Science Academy. ‘36<sup>th</sup> International Geological Congress’ - a not-for-profit society for organizing the event has been established. A nine member Governing Body was chaired by Secretary, Ministry of Mines, Government of India and a five member Executive Committee of the Society has been constituted for overseeing the implementation of the preparatory activities.

Dr. Shailesh Nayak, distinguished Scientist and Former Secretary, Ministry of Earth Sciences, GOI and Mr. M. Raju, Director General (Ex-Officio), Geological Survey of India were nominated as President and Co-President respectively. Dr. Niranjana K. Singh, Joint Secretary, Ministry of Mines was appointed as Secretary General for the 36<sup>th</sup> IGC. The Secretariat comprised three senior geoscientists. The Scientific Programming Committee was chaired by Prof. A. K. Singhvi. Government of India assured budgetary support for organization of 36<sup>th</sup> IGC. The Government of India has assured budgetary support for organisation of 36<sup>th</sup> IGC: 2016-17 US \$ 1.6 M; 2017-18 US \$ 0.8 M.

The salient themes of the 36<sup>th</sup> IGC include:

- Planetary Explorations - Geo + Planetary Sciences
- The Earth’s Dark Age
- Life and Earth - Origins, Symbiosis and Sustainability
- Tracking the mineralised systems - Proximal and Distal Footprints
- Understanding the Deep & Concealed Deposits

- 4D Geodynamic and metallogenic Evolution of the continents
- Strategic Minerals : Exploration, extraction and Budgeting
- Geophysics in Mineral Exploration
- Proterozoic Sedimentary Provinces and their Economic Potential
- Energy for all – Nuclear, Coal, Hydrocarbon and Nonconventional
- The Three Poles and its Climatic Implications
- Climate: Causes, Amplitudes and Timescales
- Extreme Events, Modelling and Prediction
- Tectonics, Topography and the Monsoon
- The Critical Zone in the Tropics
- Geology and Geophysics of the first kilometer
- Dynamics of fluid transport through the crust
- Molecular Paleontology
- Nanogeosciences
- Earth Surface Processes - Large Scale Connection

50 field trips in India along with trip coordinators and members were identified and other co-host countries were developing their field trips. The 36<sup>th</sup> IGC would offer 1,000 free Registrations, 1,000 Hospitality and 1,000 Travel supports, the Youth Geo-host Program would support 121 Graduate students as full delegates, and the Youth Volunteer INSPIRE Program would have 500 volunteers at Graduate level. With a total area of 2,35,000 sq. m, the venue could accommodate a plenary session for 8000 delegates, sixty-plus parallel sessions with 200 capacity each, 25,000 sq m of GeoExpo.

It was suggested that IUGS constituent bodies should be encouraged to contribute to scientific topics, technical sessions and field trips for the 36<sup>th</sup> IGC.

#### **14.b. International Geological Congress Committee (IGCC) meeting, 2017 (Shailesh NAYAK)**

S. Nayak, President of the 36<sup>th</sup> IGC, said that it would a pleasure to organize an IGCC meeting in India. Time for the meeting was yet to be determined. He recommended July or August 2017 and suggested that IGCC members visit the 36<sup>th</sup> IGC venue during the meeting.

In accordance with Statutes of the International Geological Congress, “The IGC Committee consists of the President, the Secretary General, and the Treasurer of IUGS, and the President and the Secretary General of the ongoing IGC Organizing Committee; the President and Secretary General of the immediate past IGC Session; and the President or Secretary General of the last but one IGC Session. The IGC Committee is co-chaired by the President of the IUGS and by the President of the immediate past Session of the Congress.”

#### **15. Earth Science Matters (Courtney E. JERMYN)**

Courtney E. Jermyn, Director of Earth Science Matters (ESM) Foundation, reported that ESM was a global network of geoscience experts focused on outreach, and was a spring-off of the IUGS-UNESCO International Year of Planet Earth (2007-2009). ESM brought together leading geoscientists to discuss ICSU's Future Earth priorities, developed project proposals together with Partners (HORIZON, RFG), and supported its Partners in their outreach activities (a.o. IAMG, PNSO). The aims of ESM for the near future included:

- To extend our Partners outreach activities;
- To bridge geo-expertise over the generations;
- To involve under-represented groups (women, children/youth);
- To embark on large-scale geoscience outreach projects
- To support IUGS' professional activities, including outreach.

## **16. IUGS Commissions: Annual Reports and Future Plans**

### **16.a. International Commission on Stratigraphy (ICS) (David Harper)**

David Harper, ICS Chair, reported that the new ICS Executive Committee took office at the 35<sup>th</sup> IGC in Cape Town. He said that the International Chronostratigraphic Chart, the main product of ICS, was regularly updated, and the completion of the chart, series/epoch, and stage/age definition was the priority of ICS. ICS would strengthen links with earth sciences community and further promote the chart in the aspects of research, teaching and outreach.

Over 300 members of the various subcommissions participated in the ICS activities.

- Members of the Full Commission (i.e. the 3 members of the Executive and the chairs of the 16 Subcommissions) represent six countries: United Kingdom (6 members), Canada (5), Italy (3), USA (2), and China (2).
- Among all subcommission officers and the ICS executive, 15 countries are represented: United Kingdom (9 members), Canada (9), USA (8), China (7), Italy (6), Australia (3), Spain (2), Russia (2), Belgium (1), Czech Republic (1), Estonia (1), France (1), Germany (1), Sweden (1), Switzerland (1).
- The voting members of ICS, i.e. all voting members of all subcommissions including officers represent 40 countries: USA (58), China (37), United Kingdom (32), Russia (31), Canada (25), Germany (24), Italy (21), Australia (16), Spain (13), France (12), Japan (10), New Zealand (8), Argentina (7), Belgium (7), Netherlands (7), Brazil (6), Poland (6), Czech Republic (5), Denmark (5), Sweden (5), Switzerland (5), Hungary (4), India (3), Korea (3), South Africa (3), Tunisia (2), Austria (2), Estonia (2), Finland (2), Iran (2), Bulgaria (1), Colombia (1), Croatia (1), Greece (1), Lithuania (1), Namibia (1), Norway (1), Portugal (1), Turkey (1), and Ukraine (1).
- Ratified GSSPs are located in 19 countries: China (10), Italy (10), the United Kingdom (9), the United States (7), France (6), Spain (6), the Czech Republic (3),

Canada (2), Sweden (2), Morocco (2), Austria (1), Germany (1), Portugal (2), Malta (1), Tunisia (1), Egypt (1), Kazakhstan (1), and Uzbekistan (1), and one (for the Holocene) is in an ice core from Greenland.

ICS sponsored STRATI 2015 – 2nd International Congress on Stratigraphy in Graz, Austria with the attendance of over 360 participants from nearly 50 nations. It was co-sponsored with SEPM (Society of Sedimentary Geology). Andrew Miall was presented with Digby McLaren Medal at the Congress. At the Joint ICS-NSF-CAS Workshop “Archiving the Stratigraphic Record”, decisions were reached to initiate a global effort to acquire and add stratigraphic data to a recognized database, and use Geobiodiversity Database at Nanjing Institute of Geology and Palaeontology (CAS), which has a formal link with ICS, as database where to archive stratigraphic data. ICS International Chronostratigraphic Chart was used as a five-story mural in the building that houses the geological staff of Shell Exploration International in Hague, Netherlands.

Recent GSSPs (Global boundary-stratotypes) established (listed in stratigraphic order):

base of Calabrian Stage formally defined at Vrica, Calabria, Italy at the GSSP that defined the base of the Pleistocene Series from 1984 to 2009

base of the Chattian Stage at Monte Cagnero, Italy, 2016

base of Albian Stage at Col de Pré-Guittard, France, 2016

base of Santonian Stage at Olazagutia, Spain, 2013

base of the Toarcian Stage at Peniche, Portugal, 2014

Other Key Updates to ICS International Chronostratigraphic Chart included: (1) 12 versions during 2016, reflecting regular updates; (2) Revised numerical age for base of Cryogenian System (from 850 Ma to ~720 Ma); (3) Translations into numerous languages including French, Chinese, Spanish (Castellano, Catalan, Basque), American Spanish, Japanese, Norwegian, Portuguese, Lithuanian.

#### **16.b. Education, Training and Technology Transfer (COGE) (Chris KING)**

Chris King, COGE Chair, The main objectives defined and approved by the IUGS are:

- Identify gaps in education, training and technology transfer both conceptually and geographically.
- Together with other relevant bodies in or outside the IUGS family, develop strategies for the coordination of existing, and the development of new, programmes in geoscience education, training and technology transfer based on the identified gaps.
- Produce a 5-year Action Plan together with an annual plan of action including budget.
- Organise meetings, conferences and workshops for geoscience educators and to disseminate information on new trends and topics in the field of geosciences.
- Develop specific programmes on the continuation and coordination of training

courses, especially through generation of teaching materials and provision of training courses.

- Encourage publication of handbooks or textbooks at an international level to help bridge recognised gaps in the training of, and education for, geoscientists.
- Facilitate the harmonisation of geoscience presentation with different cultures in order to enhance the development of ethics in geoscience education.
- Assist in the distribution of geoscience teaching materials, including books, videos, equipment, etc.

At the 35<sup>th</sup> IGC, the IGC Theme of Geoscience Education and Public Communication was managed by the COGE Chair – with 63 oral abstracts, 18 posters and a plenary session. Two workshops were run jointly by IUGS-COGE and IGEO, to develop an international geoscience textbook to support the International Geoscience Syllabus previously published in 2014/15 jointly by IUGS-COGE and IGEO and to discuss the proposed IPGG/UNESCO – IGEO Geoscience Education Survey.

The ‘International version’ of the international geoscience education textbook was currently being written, with internationally-sourced photos and case studies, with first five of the seven chapters now drafted and diagrams to be re-drawn. A suite of regional textbooks would be produced – published on the internet as free-to-download pdfs. The IPGG/UNESCO – IGEO Geoscience Education Survey was to be run by IPGG/UNESCO in March 2017 across all Latin American countries and also across 36 other countries with active IUGS-COGE or IGEO members.

The Earthlearningidea website of free-to-download teaching activities was established, with 250 activities in English – 30 more in pipeline and being accessed in 200 countries and more than 10,000 towns and cities worldwide. Current download rate was more than 40,000 per month and nearly 3 million downloads overall. The International Year of Earth science educator stories were published weekly from January 2016 aimed at giving encouragement and guidance to the next generation of Earth science educators.

#### **16.c. Management and Application of Geosc. Info. (CGI) (François ROBIDA)**

François Robida, CGI Chair, reported that the mission of CGI was to foster the interoperability and exchange of geoscience information, by active community leadership, collaboration, education, and the development and promotion of geoscience information standards and best practice. CGI had 252 members in 65 countries. The Working Groups of CGI included:

- GeoScienceML Working Group (GeoSciML) – Oliver Raymond, Australia
- EarthResourceML Standard Working Group (ERML) – Jouni Vuollo, Finland
- Geoscience Terminology Working Group (GTWG) – Mark Rattenbury, New Zealand
- Geoscience Information in Africa - Network (GIRAF) – Kristine Asch, Germany

At the 35<sup>th</sup> IGC, CGI, in conjunction with GIC (Geoscience Information Consortium)

and CGMW , jointly organized a Geoscience Information symposium composed of 6 major themes: (1) Geoscience Spatial Data Infrastructures; (2) Information Management - Interoperability and Standards; (3) Data analysis, Delivery, Dissemination and Exploitation of Geoscience Data and Information, Tools – software; (4) Multi-dimensional modeling and visualisation of solid earth models - 2D, 3D, 4D, nD; (5) Geoscience Information and Data in Africa; (6) CGMW: International Geoscience Maps in the 21st Century. CGI workshop on geoscience web services was organized. Presentations were given by the leaders of all the CGI/OGC working groups, and experts from the OneGeology and INSPIRE projects.

The GeoSciML data transfer standard was recently accepted by a unanimous vote of the Open Geospatial Consortium (OGC) Technical Committee. This significant milestone cements GeoSciML's place as an international geological data transfer standard. The EarthResource Lite version was accepted August 2016 and released August 2016 and included to IGC35th presentation. Five vocabularies had been collated, debated, reviewed and adopted since 2012 to support The GeoSciML data model. Eighteen vocabularies required for the EarthResourceML had been collated, debated, reviewed and adopted.

CGI conducted a number of regional activities. In Asia, five major projects were being conducted related to web-based geoinformation processing, storage and sharing system using CGI / OGC-based standards and web services. In Africa, Geoscience Information and Data in Africa session was organized during the 35<sup>th</sup> IGC. Geoscience Information in Africa Network (GIRAF) was handed over to AMGC at the 26th Colloquium of African Geology.

#### **16.d. History of Geological Sciences (INHIGEO) (Philippe TAQUET)**

Philippe Taquet, on behalf of INHIGEO, reported that the objectives of INHIGEO included promotion of studies on the history of geological disciplines in an international context, and encouragement of national and regional organizations that have the same purpose. As of 1 January 2017, INHIGEO had 297 Members from 58 countries. With revision to Terms of Reference in 2012, several developing countries had become Associate Members of INHIGEO. Further developing countries had applied for the 2016 ballot. INHIGEO had got new members from Africa.

Minor changes to INHIGEO terms of reference for forwarding to the IUGS Council recognized the establishment in 2014 of the “Affiliated Association” category, the change of name of our annual publication in 2013 from INHIGEO Newsletter to INHIGEO Annual Record, and the importance of informative historical field trips which have been an important INHIGEO activity since inception.

The 50th Anniversary INHIGEO conference would be held in Yerevan, Armenia on 12-18 September 2017. The 25th International Congress on the History of Science and

Technology (25th) would be held in Rio De Janeiro, Brazil on 23-29 July, 2017.

#### **16.e. Tectonics and Structural Geology (TecTask) (Stephen JOHNSTON)**

Stephen Johnston was asked to speak on behalf of TecTask. He said TecTask had submitted the annual report and updated its website. It was promising that the group had a new leadership in place and looked forward to rejuvenating TecTask. TecTask had 3 officers to be ratified at this EC Meeting.

#### **16.f. Geoscience for Environmental Management (GEM), final report (Benjamin MAPANI)**

Benjamin Mapani, GEM Chairman, reported that GEM began to work in 2004, and the name changed from COGEO to GEM in 2008. The missions of the GEM were to encourage greater application of the geosciences in sustainable use of land, mineral, energy and water resources; generate geosciences information for policy development, and communicate that information broadly; grow multidisciplinary initiatives to create new knowledge and tools to solve environmental problems; strengthen the interest of the geosciences community in environmental management and sustainable development; make the essential contributions of geosciences to environmental development and environmental management known to planners and decision makers; and to engage the key stakeholders involved in specific environmental management and sustainable development issues.

GEM had 8 Working Groups, namely Climate Change Adaptation, Communicating Environmental Geoscience (closed 2012), Drinking Water, Geological Hazards and Territorial Sustainability, Gold and Mercury, Land Subsidence and Groundwater, Man-made Strata and Geo-pollution, and Mineral Dust. Overall achievements of GEM from 2012 to 2016 included: (1) 5 books were published; (2) GEM organized or contributed to 75 events, focusing on capacity building courses in developing countries, conference sessions etc. (3) GEM activities gave rise to numerous papers in conference proceedings and journals. (4) Some Committee members were called upon to advise Government bodies (Climate Change Adaptation in Germany and Finland; Geological Hazards in Argentina); (5) the Gold and Mercury Group had close ties with UNEP; and (6) the Man-Made Strata and Geopollution Group was closely associated with radiation monitoring following the Fukushima disaster of 2011.

GEM was closed with the 35<sup>th</sup> IGC and the final report was submitted. A new IUGS Commission dealing with “Human activities and the geoenvironment” was being developed and the proposal would be submitted to the new IUGS EC for consideration.

#### **16.g. GeoHeritage (ICG) (Patrick DE WEVER)**

Patrick De Wever, Chair of Heritage Sites and Collections Subcommission, reported

that the IUGS Commission on GeoHeritage (ICG) was merged and upgraded from two IUGS Task Groups - Task Group on GeoHeritage (TGG) and Task Group on Global Geoheritage Stone (HSTG). ICG now consisted of two Subcommissions: (1) Heritage Stone Subcommission; (2) Heritage Sites and Collections Subcommission.

ICG collaborated actively with several other commissions, organizations and networks such as the International Association of Engineering Geology (IAEG), ProGeo (both organizations affiliated to IUGS), EGN and UNESCO Geoparks etc. The primary objective of the IUGS International Commission on GeoHeritage (ICG) involved the promotion of research, development and maintenance of inventories and the development of geological standards with specific reference to heritage stone and geoheritage sites in general. ICG endeavoured to promote and co-ordinate these activities at the international, national and regional level via conferences, publication of individual and collective works, as well as professional and popular guides that expand knowledge and facilitate understanding of these subjects.

ICG had developed the websites:

Geosites (<http://geoheritage-iugs.mnhn.fr/>)

Heritage stones : <http://globalheritagestone.com/> .

Geosites inventory covered 71 countries and 72 GSSPs across 18 countries). Inventories for 19 countries were also included and legislation for 60 countries.

#### **16.g.1. Heritage Stone Certificate (Dolores PEREIRA)**

Dolores Pereira, Secretary General of Heritage Stone Resource Sub-commission, introduced procedure for designating Global Heritage Stone Resources (GHSR). The group asked for the opinions and approval of the EC on the drafted protocol and certificate about nominating stones as Global Heritage Stone Resources, and to have the IUGS logo put on the protocol and certificate. The certificates were intended to be given to quarries and companies involved in heritage stone.

The proposed procedure of designating Heritage Stone included the following:

1. Proposal of a candidate Global Heritage Stone Resource (GHSR);
2. Heritage Stone Subcommission (HSS) Board initial assessment;
3. Publication of a list of official candidate stones;
4. The HSS Board appoints reviewers;
5. External reviewers send recommendations to the Board;
6. HSS Board second assessment;
7. HSS Board, through the Secretary General, submits the result to the IUGS EC;
8. HSS Board informs on the final result.

She also showed the EC a draft Heritage Stone Certificate and asked the EC for help – what to do with the designation of the heritage stone and to whom the certificate should be issued to, a local government, a quarry or a company?



SF commented that in the Bureau Meeting held in Beijing concerns were raised about the potential association of IUGS with industrial and commercial activities related to the quarrying and marketing of stone resources.

Questions were raised about the definition, criteria and procedure of Heritage Stones. It was stressed that the criteria of Global Heritage Stone Resources should be clarified and a proposal should meet the defined criteria and follow the designated procedure in order to get ratification by IUGS.

#### **16.h. Global Geochemical Baselines (CGGB) (A. DEMETRIADES)**

Alecos Demetriades, Treasurer of CGGB, reported that the IUGS Task Group on Global Geochemical Baselines (TGGGB) (1997-2016) was upgraded to the IUGS Commission on Global Geochemical Baselines (CGGB) at the 35<sup>th</sup> IGC in Cape Town. The first activity of the Commission was to update the website, currently being redesigned with the addition of social media. CGGB currently had 101 members in 55 countries. Two-day workshop on “Global Geochemical Mapping” during the 35<sup>th</sup> IGC was attended by 19 people from 8 countries. The 3<sup>rd</sup> Arthur Darnley Symposium “Mapping the geochemistry of the Earth’s surface at global to local scales” was organized during the 35<sup>th</sup> IGC.

One of the main tasks of the IUGS Commission on Global Geochemical Baselines would be to encourage all Geological Surveys to make publicly available not only the data of continental-scale geochemical mapping, but also their regional geochemical data sets, and after a certain period of confidentiality the data of detailed geochemical surveys. Regarding the continental-scale geochemical data sets, the Commission would validate the data sets that have been produced according to ‘Blue Book’ specifications, and these would be part of the Global Geochemical Database. The validation of all other data sets, including continental-scale, would be the responsibility of the producing organisations.

He introduced that CGGB, according to its IUGS mandate, took the lead in establishing the standards for global-scale geochemical mapping and database development in collaboration with the UNESCO International Centre on Global-scale Geochemistry; whereas, the ICGG took the lead in implementing those standards, in collaboration with the Commission. CGGB reached an agreement with the YES Network to establish a Working Group on Applied Geochemistry. CGGB submitted a proposal for a session in RFG 2018.

#### **17. IUGS Task Groups, Initiatives, Joint Programs: Annual Reports and Future Plans**

##### **17.a. Global Geoscience Professionalism (TGGGP) (Isabel FERNANDEZ)**

Isabel Fernandez, TGGGP Treasurer, members of TGGGP included European Federation of Geologists (EFG), Geoscientists Canada, American Institute of Professional Geologists (AIPG), Australian Institute of Geoscientists (AIG), Colegio de Geólogos de Bolivia (CGB), Geological Society of South Africa (GSSA), South African Council for the Natural Scientific Profession (SACNASP), Masyarakat Geologi Ekonomi Indonesia (MGEI), Colegio de Geólogos de Chile, National Association of State Boards of Geology (ASBOG) and Sociedad Colombiana de Geología.

He reported that at the 35<sup>th</sup> IGC, sessions under the theme Global Professionalism and Geoethics ran over a 3-day equivalent timeframe during 35IGC and 14 sessions were organized under the theme (11 oral sessions, 3 panel sessions, and 1 poster session). It was agreed at the Task Group Committee face-to-face meeting during the 35<sup>th</sup> IGC to undertake a survey on each organization's structure, professional membership standards, code of ethics and conduct, etc. and to prepare a collaborative reference document defining commonly used terms, and outlining common understandings of professionalism and self regulation. In 2016, three new members joined TGGGP.

Isabel Fernandez, Executive Director of European Federation of Geologists (EFG), reported that EFG represented 43,339 geologists in 26 countries in Europe. 219 experts involved in the 9 EFG Panel of Experts, covering CO<sub>2</sub> geological storage, soil protection, oil and gas, geothermal energy, hydrogeology, education, geological heritage, natural hazards & climate, and minerals. EFG projects in 2016 included:

MICA: fostering international raw materials cooperation

CHPM2030: Combined Heat, Power and Metal extraction from ultra-deep ore bodies

UNEXMIN: Autonomous Underwater Explorer for Flooded Mines

FORAM: Towards a World Forum on Raw Materials

#### **17.b. Geohazards (TGG) (Yasukuni OKUBO)**

Yasukuni Okubo, TGG Chair, reported that the objectives of TGG were to establish survey manuals of geohazards and to standardize input-formats of geohazards data, and to establish a data sharing platform on global geohazards occurrences. TGG aimed to establish an international forum to discuss the current and future practices and to create web-based intelligence for decision-makers as well as societal benefits.

TGG planned to organize a Session entitled "Enhancing Scientific and Societal Understanding of Geohazards in an Engaged Global Community" at the JpGU-AGU joint meeting 2017 and a Session entitled "Convergent margin geohazards and geodisasters: Mitigation and long and short term preparedness" at the RFG 2018 Conference. A proposal to SATREPS (Science and Technology Research Partnership for Sustainable Development) aimed to promote international joint research targeting global issues with an objective of future utilization of research outcomes in developing countries.

He reported that future plans included webpage construction, compiling of

geohazards data, hosting symposium on global geohazards, and publishing the global geohazard map series.

#### **17. c. Isotope Geology and Geochronology (TGIG) (Igor VILLA)**

Igor Villa, Chair of the IUGS Task Group on Isotopes in Geosciences (TGIG), reported that TGIG was jointly supported by IUGS and the International Union of Pure and Applied Chemistry (IUPAC). He reported that the role of TGIG was to learn to overcome language barrier, painstakingly sift literature for systematic biases and obtain peer acceptance. In 2016, the Task Group reviewed 23 papers, published after 2000, that contain new data relevant for the determination of the half-lives of the U isotopes. In 2016, TGIG delivered the status report on  $^{238}\text{U}$ ,  $^{235}\text{U}$ ,  $^{234}\text{U}$ .

#### **17.d. Forensic Geology (IFG) (Jennifer MCKINLEY)**

Jennifer McKinley, IFG Communications Officer, reported that the major objectives of the initiative were to collate and disseminate data and information on forensic geology applied to policing and law enforcement, criminal, environmental and civil investigations; promote international meetings, seminars, conferences and training; develop a 'Committee' to act as principal advisers, collaborators and active participants; develop an international network whereby each 'member' will act as a principal contact in their respective country for the collation and dissemination of information on forensic geology; collate, make available and where appropriate review any existing documentation and publications in forensic geology; and produce a document endorsed by the Committee to be called A Guide to Forensic Geology.

IUGS-IFG was active in outreach, knowledge exchange, capacity building and training. A Session on Forensic Geology was held during the 35<sup>th</sup> IGC in Cape Town. In 2016, IUGS-IFG held approximately 60 events. An IUGS Ad Hoc Review was conducted to IFG in April 2016.

#### **17.e. International Lithosphere Programme (ILP) (Roland OBERHAENSLI)**

Roland Oberhaensli, entrusted by Alexander Rudloff, ILP Executive Secretary, reported that the overall objectives of ILP were to elucidate the nature, dynamics, origin and evolution of the lithosphere through international multidisciplinary research projects and coordinating committees; promote multidisciplinary research projects of interest to geological (IUGS) and geophysical (IUGG) communities; achieving a fine balance between “addressing societal needs” –understanding solid earth processes, providing information for improved hazard assessment, sustainable resource exploration, geomedicine, and “satisfying scientific curiosity”; and promote young scientists.

ILP Task Forces and Coordinating Committees for the period 2016-2020:

TF II: Structural and rheological constraints on magma migration, accumulation and

eruption through the lithosphere

TF III: The seismic cycle at continental transforms from seismological observation and forward simulation

TF IV: Fate of the subducted continental lithosphere: insight through analytical mineralogy and microstructures

TF VI: Sedimentary Basins

TF VIII: Lithosphere dynamics: interplays between models and data

TF IX: Subduction across scales (SAS)

CC-1 TOPO-EUROPE: 4D Topography Evolution in Europe: Uplift, Subsidence and Sea Level Rise

CC-4 MEDYNA: Maghreb-EU integrated research on geodynamics, geo-hazards, and applied geology in North West Africa

A business meeting was held at EGU in Vienna, Austria, April 2016. A joint workshop of several TF and CC took place in Clermont-Ferrand, France. Several TF organized sessions at EGU, AGU and IGC and workshops.

## **18. Discussion on Reports and Decisions of Commissions, Task Groups, and Initiatives**

It was suggested feedback be given to Commissions, Task Groups and Initiatives.

Ideas were explored to encourage a successful Commission/Task Group/Initiative to evolve into an independent international association. It was also stressed that an influential Commission/Task Group/Initiative within IUGS could increase IUGS' global visibility and reputation.

## **19. Amendments of IUGS Statutes and Bylaws**

RO explained that IUGS Statutes and Bylaws had been amended for several times to adapt different situations through the long history of IUGS, but this also meant that there were inconsistent and out-of-date contents in the current Statutes and Bylaws. RO pointed out that IUGS should hire professional people who were familiar with law and acquainted with contracts to review the Statutes and Bylaws and recommend amendments. RO also advised IUGS to collect amendments from related communities who might recommend any amendments.

EN commented that it would not be a large exercise to conduct a comprehensive review on the Statutes and Bylaws, such as modify language to be more accessible and easy to understand. IUGS could share the Statutes and Bylaws among relevant colleagues for amendments, but only hire lawyers to conduct limited legal review.

SF suggested that each EC member should read through the Statutes and Bylaws line by line and bring his or her suggestion or modification to the next EC meeting in 2018.

Amendments should be ready 6 months ahead of the next Council Meeting.

## **20. Reports from IUGS Adhering Organizations**

### **20.a. France (Sylvain CHARBONNIER)**

Sylvain Charbonnier, President of French Geological Society (SGF), presented a report on the main activities of SGF in 2016 and plan for 2017. SGF was founded in 1830 and began to serve the public in 1832. By 2017, SGF has about 1600 members. Main activities of SGF in 2016 is composed of publications, events and meetings.

#### 1. Publications

SGF published a number of books for students, specialists and the public. SGF's Bulletin, a historical journal of the Society, has evolved with a new title "BSGF-Earth Sciences bulletin". SGF published "Geological Walk at UNESCO" and "A Geologic Walk around La Defense" and edited several volumes dedicated to Geoheritage in the cooperation with Prof. Patrick De Wever.

#### 2. Events

SGF organized National Earth sciences Olympiad in 2016 to promote Geosciences for Secondary School Students. This year, France will host the International Earth Science Olympiad 2017 (IESO 2017). SGF is preparing "The Fossil Week-5th International Palaeontological Congress" which will be held on July 9th-13th, 2018 and this event may attract as many as 1500 participants.

#### 3. Meetings

SFG will organize a meeting with European partners, including Belgium, Great Britain and the Netherlands.

### **20.b. United Kingdom (Edmund NICKLESS)**

EN, fellow of Geological Society of London (GSL) report on major facts of the Society, highlights in 2016, relationship with IUGS and continuing concerns.

GSL organizes about 100 meetings a year of which about 12 are two or three-day research in progress meetings and holds monthly public lectures and other outreach events and publishes between 8000 and 10000 pages of peer reviewed content in its Journals and Special Publications series annually. GSL has a fellowship (membership) of over 12000, which continues to grow and responds to government and other consultations.

EN reviewed the highlights of 2016: Designated years, including Year of Mud (2015), Year of Water (2016), Year of Risk (2017) and Year of Resources (2018); Flagship Meetings, including Bryan Lovell Meeting, Janet Watson Meeting, William Smith Meeting, Arthur Holmes Meeting, Lyell Meeting and Fermor Meeting; New Specialist Group in Contaminated Land and Earth Science Week in the UK and Ireland

EN mentioned that IUGS's Annual Report continued to improve and had become an attractive and informative document which was appealing to a wide audience and creates a positive impression of the IUGS and its activities. EN also mentioned the lack of response to questions and comments raised in 2015 UK annual report to IUGS

EN pointed out that GSL would like to continue to encourage UK geologists to be engaged in IUGS activities, but the continuing concerns from GSL still existed, including IUGS's lack of focus on its activities and lack of evidence to help UK make the case for continuing category 8 membership. GSL suggested that IUGS focus its activities and demonstrate that membership fee is effective in taking forward strategic aims of UK and other IUGS members.

CQ thanked EN for his report and comments on the work and future development of IUGS. CQ asked if EN had any suggestions on how to make IUGS's work more efficient. EN answered that IUGS's activities should be focused, which meant that IUGS should make the best of what it had. EN mentioned that IUGS needed to develop its own communication strategy. SF commented that to increase communication between IUGS and its members, he would write a letter to National Committees or Adhering Organizations, asking feedback from them on how IUGS can better serve them and other questions concerning membership. This letter will be attached with a list of each member country or region's scientists who are participating in IUGS activities. SF hoped that this letter could be sent out together with the 2017 membership invoice. EN mentioned that it would be helpful to know how IUGS used the information submitted in National Committees' annual reports, and to see a compendium of the returns from other National Committees in order to share information and better understand the wider context for the activities that GSL conducted.

#### **20.c. India (Subrata CHAKRABORTI)**

On behalf of the Chairman of INSA-IUGS, Indian National Committee, Subrata Chakraborti from Geological Survey of India presented a report on activities related to IUGS conducted by the INSA- IUGS Committee during the year of 2016.

##### **1. Preparation of Indian Report to IUGS**

INSA-IUGS published a special issue- Proceedings of Indian National Science Academy, which contained 40 peer reviewed articles and 10 institutional reports. About 100 Printed copies of this special issue and 300 soft copies (pen drives) were disseminated at the IGC

2016.

## 2. Brainstorming sessions

INSA-IUGS organized several brainstorming sessions, including “Early Earth geodynamics and the switch over to Plate Tectonic regime”, “Quaternary Environments and Climates: Focus on Holocene and Anthropocene” and several workshops/seminars, such as “Quaternary Climates: Recent findings and future challenges” and “Workshop on accelerator mass spectrometric (AMS) dating as a part of National Center for Geochronometry”.

## 3. INSA-IUGS visiting Professorships

Three INSA-IUGS visiting professorships were created: Prof. R. J. Wasson, an eminent hydrogeologist and paleo climatologist presently visiting India for 2 weeks in February, 2017 as INSA - Vikram Sarabhai Chair. Funds for the remaining two would be explored through support from ONGC, the Ministry of Earth Sciences and the IGC Society.

## 4. Participation in TROP-ICSU

IUGS committee of INSA participated in TROP-ICSU, which involved a number of countries and international scientific groups, such as INQUA.

## 5. Scientific programs recommended by INSA-IUGS

With help from Ministry of Earth Sciences, several national level coordinated programs were being taken up:

- High resolution zircon U-Pb geochronology to understand Precambrian crustal evolution of peninsular India
- Geodynamics of Himalaya
- Evolution of Proterozoic basins
- The critical zone
- The river sciences and sediment transport from source to sink
- Evolution of coast lines through time
- Modeling of tsunami hazards under anticipated sea level rise

## **21. Reports from IUGS Affiliated Organizations**

### **21.a. Arab Geologists Association (Sarmad Sh. MAHAMOOD)**

Sarmad Sh. Mahmood, Secretary General of Arab Geologists Association (AGA), briefly introduced the Association and reported on the Association’s main activities in 2016.

AGA are mainly involved in Geological study of the common themes among the Arab countries, Exchange of information and experience, communication with the Geological authorities in the Arab world and cooperation with the International geological community. AGA consists of the associated bodies from the Arab countries, higher council conference, Executive Office, General Secretariat and technical committees. IUGS provides expertise for the purpose of raising the scientific level of geological survey and drilling water wells and dams, reservoirs and Arab universities bodies.

Sarmad Sh. Mahamood reviewed the main geoscientific meetings and symposiums that AGA had participated since 2004. AGA successfully rejoined a number of Arab countries since 2004 and had been actively encouraging geologists from Arab world to participate in the activities of IUGS. He pointed out that most of the Arab countries hadn't paid their membership dues to IUGS. For example, in 2014, only Egypt paid its membership due of about 500USD to IUGS. He also mentioned that in Arab countries, geology and geosciences were less important than engineer geology, such as mineral resources and energy research.

Alecos Demetriades commented that in many countries, engineer geology was much better organized and more important than basic geosciences. Luca Demicheli pointed out that the weak situation of geologists in many countries, which didn't comply with the interests of IUGS and international geoscience community, needed to be corrected. Engineering sciences are better organized than geosciences because they have more communication and stronger link with industry and private sectors. Geologists should build stronger connection with industrial sectors by providing geological knowledge and expertise to them. CQ commented that IUGS should also promote the visibility and recognition of geoscientists so as to gain more financial support for geoscientific activities.

#### **21.b. Inter. Association for Mathematical Geosciences (IAMG) (Eric CRUNSKY)**

Eric Crunsky, Secretary General of International Mathematical Geosciences (IAMG), gave a brief introduction of IAMG, reviewed the chief accomplishment in 2016 and presented future plan.

IAMG was founded in 1968 in Prague. Its mission is to promote, worldwide, the advancement of mathematics, statistics and informatics in the geosciences. IAMG is a pan-geoscience organization, with emphasis on developing quantitative theory and methods. It consists of Executive Committee and Standing Committee, having about 800 members worldwide.

Eric Crunsky introduced IAMG's primary functions related to IUGS scientific objectives, partner organizations, sponsorship and support for organizations and conferences, IAMG Journals, Proceedings, abstracts and Information, additional products and international students. In 2016, IAMG's revenues generated from journal royalties, dividends,



conference fees and a small annual membership fee was 185,000 USD.

Eric Crunsky reviewed the chief accomplishment of IAMG in 2016: Organized a number of sessions and plenary lectures at the 35th IGC in Cape Town, South Africa; IAMG Distinguished Lecturers presented lectures at a number of international locations, including keynotes at geoENV2016 in Lisbon and the 10th International Geostatistical Congress in Valencia, Spain; IAMG sponsored an invited session on compositional data analysis at the Royal Statistical Society (RSS), Manchester University (UK).

Eric Crunsky mentioned future Plan of IAMG, including several scientific conferences, such as the 18<sup>th</sup> IAMG conference which would be held in Perth, Australia, September 2-9 and the IAMG & RFG2018 Initiative. IAMG would be more focused on younger mathematical geoscientists, geographic diversity and gender balance in IAMG and the development of social media interface.

WC commented that he was impressed with the IAMG publications, which are the major revenue source of IAMG and this can be a good model for IUGS.

### **21.c. Young Earth Scientists Network (YES) (WANG Meng)**

Wang Meng, President of Young Earth Scientists (YES), gave a brief introduction of YES and reported on the major achievements in 2016, working plan for 2017, future perspective and budget for 2017.

#### **1. Introduction**

YES Network is an international group of early career geoscientists from universities, geosciences organizations and companies, with over 4500 members from 129 countries. It has been founded in 2008 during the International Year of Planet Earth with the vision of "Promoting the Geosciences for Society". Until now, 49 National Chapters have been set up. By the end of 2015, YES has 5000 members from 129 countries and 49 National Committees and National Representatives. YES permanent Secretariat is not hosted in EuroGeosurveys.

#### **2. Major achievements in 2016**

Wang Meng reviewed the major achievements of YES as follows: Wang Meng attended the G20 Youth Summit in August, 2016 as the head of Chinese delegation to the Summit; YES promote geosciences through a variety of social media, including facebook, LinkedIn and talk show; YES actively participated in the 35<sup>th</sup> IGC in Cape Town, South Africa; YES signed agreements with Iran, Germany, India and RFG 2018 conference and organized several regional workshops and meetings.

#### **3. Working plan for 2017**

Wang Meng presented working plan for 2017 as follows: YES would organize 4th YES Congress on August 27-30, 2017, several joint events with EGU, IAMG and AGU, YES ten-year celebration; YES would be involved in at least two small seed projects, RFG projects, IGGP projects and Horizon 2020; YES would set up task groups to participate in projects of IUGS Commission on Global Geochemical Baselines and help non-GGN members to work on Geopark and Geoheritage; YES would publish its own Bulletin, "Orogenic in Mesozoic, as a memory of Prof. Hongren Zhang" in *Episodes* and "Climate Change and Groundwater" in *GSL* publication.

#### 4. Future perspective for YES

##### International events

- 4th World YES Congress, Teheran, Iran in August, 2017
- Resourcing Future Generations, Vancouver, Canada in August, 2018
- 5th World YES Congress, Berlin, Germany in August 2019
- Partner and Joint Events in 36 IGC in March 2020

##### Regional events

- YES-South Africa Congress 2018
- YES-Asia Congress on Geochemistry for Sustainable Agriculture 2018
- Training courses, workshops and meetings

##### Scientific projects

- Horizon 2020
- Some seed Funding Grant from YES Network will be organized from 2018
- Applied Geochemistry for Sustainable Agriculture, with Global Geochemistry Mapping, IUGS geochemistry task group

##### More partners

YES would set up more National Chapters and nominate Ambassadors to several organizations.

##### YES Prize

YES would nominate YES fellows who are outstanding young and early career geologists. This is a long term prize plan and the first prize would be granted in August 2017. YES had already received financial support of 30,000 USD from KR Company.

#### 5. Budget for 2017

Total Budget for 2017 was 65,200 USD, which would be mainly used for YES Congress in Iran, Registration in Belgium, national events, seed funds, EC members' travel reimbursement, YES ten-year celebration and website.

#### **21.d. International Association for Promoting Geoethics (IAPG) (Silvia PEPPOLONI)**

Silvia Peppoloni, Secretary General of International Association for Promoting Geoethics (IAPG), briefly introduced IAPG and reviewed the major achievements of IAPG since 2012.

##### **1. Introduction of IAPG**

IAPG was founded in 2012 at the 34<sup>th</sup> IGC. As a conceptual substratum for geoethics, IAPG aims to develop ethical issues related to geosciences, offer to geoscientists a platform where to discuss and exchange ideas and share contents. IAPG has more than 1400 members from 110 countries and 24 national sections and is composed of Executive Council, Board of Experts and Young Scientists Club. IAPG promotes geoethics through international collaboration with associations and institutions.

##### **2. Major achievements since 2012**

Silvia Peppoloni reviewed that since its establishment, IAPG had been involved in the definition and main topics of "geoethics", 4 levels of geoethical analysis (oneself, colleagues, society, environment), ethical criterion for taking decisions in geoscience, reference values as a basis for codes of conduct, "Geoethical Promise", publications peer reviewed, scientific events on geoethics and events for the general public (videos, interviews, conferences). Silvia Peppoloni also expressed gratitude to IUGS for its strong support for IAPG.

##### **21.d.1. Cape Town Statement on Geoethics (Silvia PEPPOLONI)**

Cape Town Statement on Geoethics was announced during the 35<sup>th</sup> IGC in Cape Town, South Africa. Silvia Peppoloni introduced the background, necessity, structure, value, purpose, definition and approval process of the Cape Town Statement on Geoethics. The Statement had gained support from 13 international or regional organizations, including EuroGeosurveys, Geological Society of America and YES Network. The Statement was composed of Preamble, Introduction, Definition of Geoethics, Purpose, Fundamental Values of Geoethics, Geoethical Promise and Final Statement. Silvia Peppoloni presented the major chapters of the Statement.

SF asked Silvia to clarify what did IAPG want IUGS to do with the Statement. Silvia responded that in general, IAPG hoped that IUGS can support the statement, allow IAPG to use the logo in the Statement to be published on the IAPG website and advertise the

Statement in the international geoscience community.

Motion to let IUGS Task Group on Global Geoscience Professionalism endorse the Statement on Geoethics as approval by IUGS.

**Accepted with an abstention**

#### **21.e. Application for Affiliation of Association of Global Groundwater Scientists**

KA pointed out that IUGS already had an affiliated organization, namely International Association of Hydrogeologists (IAH), thus it was necessary to check if there was any overlap between IAH and the applicant. Other EC members agreed with KA and suggested that SF write to the applicant to check if there is any overlap between IAH and the applicant.

#### **22. ARC reviews in 2017**

SF reported that IUGS has conducted ARC reviews to the following IUGS activities since 2009: Initiative for Forensic Geology (2016), Episodes (2015), IGCP (2013), GARS (2013), COGE (2013), ILP (2012), INHIGEO (2012), GEM (2010), CGI (2009) and overdue activities include ICS, TecTask, GeoHeritage, TGGGP and TGIG.

SF mentioned that the last ARC review on ICS was conducted in 2007. WC pointed out that ICS and TecTask are the most important and urgent ones at this point and suggested conduct ARC reviews on these two groups this year. SJ commented that this year should be a good time for the ARC review on TecTask in terms of its new leadership.

Motion to select EC members to conduct the ARC reviews on ICS and TecTask at the Closed Session of the 71<sup>st</sup> EC meeting.

**Accepted.**

#### **23. 2016 IUGS Annual Report**

SF introduced the main parts of IUGS Annual Report by showing the Annual Report for the year of 2015 as an example. EN suggested add some novelty into the 2016 Annual Report, particular highlights of IUGS work in 2016.

#### **24. Next EC Meeting**

Germany, South Korea and Columbia are potential hosts of the next EC Meeting.

Vancouver, Canada will host a Bureau Meeting in December, 2017.

## **25. Other Businesses**

SF introduced the arrangement for next day's Closed Session. SF will send documents to EC members via email for the Closed Session.

## **26. Closing of the Open Session**

Patrick McKeever said that he was happy to host the 71<sup>st</sup> IUGS EC Meeting in the headquarter of UNESCO. Patrick wished a full success of the Closed Session and hoped that IUGS representatives could have a fruitful participation in the IGCP Meeting next week. SF expressed his appreciation for the great help from Patrick and other UNESCO colleagues. CQ thanked the support and assistance from UNESCO and appreciated the cooperation of all the meeting participants.

Attachment:

**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES  
71<sup>ST</sup> EXECUTIVE COMMITTEE MEETING  
OPEN SESSION**

**February 15th-17th, 2017**

**ACTION LIST**

Item	Description	Status
EC71Act_01	The Publications Committee to further discuss with the managing and scientific editors of <i>Episodes</i> about details concerning the hardcopies of <i>Episodes</i> at the coming PC Meeting in April.	
EC71Act_02	The Webmaster Peter Bobrowsky to consult with the Publications Committee whether to redesign the website and put forward a corresponding budget for the consideration of the EC.	
EC71Act_03	An EC member to take on the role as the E-bulletin editor and the decision to be made at the closed session of the EC Meeting.	done
EC71Act_04	The EC to decide how to form the new Finance Committee at the closed session of the EC Meeting.	
EC71Act_05	An EC member to be appointed as the IUGS representative to UNESCO Global Geoparks Programme at the closed session of the EC Meeting	done
EC71Act_06	Secretary General to write to each IUGS member a letter, including a list of geologists from the member country or region to either serve on IUGS bodies and groups or participate in IGCP projects, and GSSPs located and IUGS-related meetings held in that member country or region, to reinforce communication and between IUGS and its members.	
EC71Act_07	Secretary General to send Chris King the proposal of the International Union of Biological Sciences (IUBS) and invite the Commission on Geoscience Education, Training & Technology (COGE) to nominate an IUGS representative with expertise in this field to the IUBS programme.	
EC71Act_08	All EC members to read through the Statutes and Bylaws	

	and prepare their suggestion or modification for the next EC meeting in 2018.	
EC71Act_09	Secretary General to write a letter to each National Committee or Adhering Organization to ask for advises on improving relationship between IUGS and its members.	
EC71Act_10	Secretary General to write to the Association of Global Groundwater Scientists to check its possible overlap with IAH.	
EC71Act_11	EC members to decide the EC members to conduct the ARC reviews on ICS and TecTask at the closed session of the EC Meeting.	done
EC71Act_12	Secretary General to wok together with the Secretariat to finish the 2016 IUGS Annual Report by the end of May.	
EC71Act_13	Secretary General to write to Germany, South Korea and Columbia to check if any of them would like to host the next EC Meeting.	done
EC71Act_14	SF to send meeting documents to all EC members for the Closed Session.	done