

IGCP 2018 Annual Report



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1. Introduction

Developing an advanced understanding of the Earth's fundamental processes and resources is essential to reaching UN sustainable development goals.

UNESCO is the only United Nations organisation with a mandate to support research and capacity in Earth Sciences, and the International Geoscience and Geoparks Programme is our flagship.

The International Geoscience and Geoparks Programme (IGGP) consists of two pillars:

1. International Geoscience Programme (IGCP), since 1972, has harnessed the intellectual capacity of a worldwide network of geoscientists to lay the foundation for our planet's future, focusing on responsible and environmental resource extraction, natural hazard resiliency and preparedness, and adaptability in the era of a changing climate.
2. UNESCO Global Geoparks (UGGp) are laboratories for sustainable development which promote the recognition and management of Earth heritage, and the sustainability of local communities. As of December 2018, there are 140 UNESCO Global Geoparks within 38 Member states, covering a total area of 250,000 km².

UNESCO's International Geoscience and Geoparks Programme (IGGP) is implemented through these two activities: the International Geoscience Programme, a co-operative venture with the International Union of Geological Sciences (IUGS), and the UNESCO Global Geoparks. They coordinate their work through a shared UNESCO Secretariat and joint coordination meetings of their respective bureaux which convene as necessary. The chairpersons of the two respective Councils co-chair the IGGP ([Annex 9a](#)).

In the framework of the International Geoscience and Geoparks Programme (IGGP), this report is drafted by UNESCO IGGP Secretariat for the 4th Open Session of the International Geoscience Programme (IGCP) Council and the presentation of the new UNESCO Global Geoparks applicants which will take place at UNESCO HQ from 9.30 a.m. to 12.30 p.m. on Thursday 21 February 2019.

This report summarises:

- UNESCO IGCP Secretariat 2018 activities,
- The results, scientific achievements and the project meeting activities of 27 IGCP projects annual reports submitted as of 31st December 2018,
- Details of 21 new IGCP project proposals received as of 15th October 2018 for the evaluation of the IGCP Scientific Board in February 2019.

UNESCO Global Geoparks 4th Council meeting report is published separately and is available on [UNESCO's website](#).

2. Definition of IGCP

The International Geoscience Programme (IGCP) serves as a knowledge hub of UNESCO to facilitate international scientific cooperation in the geosciences. The IGCP mission includes promoting sustainable use of natural resources, advancing new initiatives related to geo-diversity and geo-heritage, and geohazards risk mitigation.

Since 1972, the International Geoscience Programme (IGCP) has partnered with the International Union of Geological Sciences (IUGS) to bring together thousands of Earth scientists from around the world and allowed them to benefit from the cooperative spirit generated under the umbrella of UNESCO.

The IGCP promotes collaborative projects with a special emphasis on the benefit to society, capacity-building, and the advancement and sharing of knowledge between scientists with an emphasis on N-S and S-S cooperation. IGCP operates by providing seed funding grants donated by UNESCO, IUGS and extra-budgetary sources.

IGCP projects primarily deal with geosciences on global issues within its five themes:

- Earth Resources,
- Global Change,
- Geohazards,
- Hydrogeology, and
- Geodynamics.

Each project has an average lifespan of five years and its progress is assessed annually through a rigorous peer review process conducted by the IGCP Council following the evaluation reports from members of the Scientific Board during the first half of February.

The Scientific Board and IGCP Council are also responsible for evaluating new project proposals. The Scientific Board consists of about 50 specialists responsible for the technical reviews and it works electronically only. Board members are appointed as specialists in their given field for each of the five IGCP themes, with preferably an overlap in the Earth sciences fields, and reflects a worldwide geographic distribution.

The IGCP Council consists of six members, a chairperson and five experts, one for each IGCP theme and they meet annually at UNESCO HQ.

Considering that the IGCP has a limited budget, IGCP support is specially earmarked to help scientists from developing countries.

3. UNESCO IGCP Secretariat 2018 activities

In 2018, UNESCO IGCP Secretariat focused on below listed main activities.

1. Organisation of the annual statutory meeting of the IGCP Scientific Board between 19th and 21th February 2018, and the funding of 26 IGCP project meetings in 16 countries,
2. Project partnership agreement with the Jeju Province Development Corporation (JPDC) of the Republic of Korea to support IGCP projects,
3. Management of the open call for the replacement of three new IGCP Council members and ten scientific board members,
4. Participation in the International Conferences to disseminate the achievements of the IGCP, organisation of IGCP project presentation meeting to the representatives of UNESCO delegations,
5. Collaboration with UNESCO National Commissions and IGCP National Committees, organisation of joint meetings,
6. Launch of 2018 IGCP New Project proposal open call and upon the receipt of 21 new proposals the management of their evaluation along with the active projects annual reports.

3.1 International Geoscience Programme Council Session 17-20 February 2018

UNESCO IGCP secretariat is responsible for the organisation and financial support of the annual statutory meeting of the IGCP Scientific Board which assess new IGCP project proposals and annual reports of existing projects plus agreed fund allocation to each project. In 2018, IGCP Council meeting was organised with the participation of five Council members using UNESCO HQ Paris facilities between 19 and 21 February 2018. Unfortunately, Geodynamics Theme Council member, Dr Nellie Mutemeri (Zimbabwe), was not able to participate in the 3rd IGCP Council meeting due to unexpected health problems.

Following the completion of the closed IGCP council session, the Council presented their recommendations to the members of IGCP UNESCO National Commissions, IGCP National Committees and UNESCO Permanent delegations on 21 February 2018. Total number 70 representatives participated in this meeting and were informed about IGCP 2017 activities and the decisions of the closed IGCP council session.

In March 2018, UNESCO IGCP secretariat finalised the council meeting minutes and decisions which were published at UNESCO website. The minutes of the 3rd Council session and IGCP 2017 annual report were also circulated to the IUGS, Member States and Associate Member States of UNESCO by IGCP secretariat.

Following the funding allocation for 2018 IGCP projects by the Council, UNESCO IGCP Secretariat, in collaboration with the IUGS Treasurer and General Secretary of the IUGS, financially supported 22 IGCP projects related workshops and capability building activities in 2018, the details of these activities are listed in Annex 10 of this report. IGCP projects leaders are responsible of providing the details of their annual meeting plans, agenda and

objectives to the IGCP Secretariat ahead of their workshops. IGCP UNESCO Secretariat evaluates and approves these activities and following UNESCO's validation, IUGS treasurer is responsible for the funds transfer for these project meetings.

3.2. Project partnership agreement with the Jeju Province Development Corporation (JPDC) of the Republic of Korea to support active IGCP projects

In 2017, UNESCO IGCP secretariat focused on the resource mobilisation activities to extend the portfolio of IGCP projects. As a result, on the 20th February 2018, UNESCO and the Jeju Province Development Corporation (JPDC) of the Republic of Korea signed a project partnership agreement entitled "Geoscience for Society: JPDC supporting the International Geoscience and Geoparks programme" through which the JPDC will contribute 100,000 USD to support IGCP projects and UNESCO Global Geoparks over the next five years. The partnership agreement ceremony was organised by the IGCP Secretariat at UNESCO HQ on the on the 16th April 2018. The Republic of Korea UNESCO Permanent delegation and National commission representatives, JPDC CEO and senior management team signed an overarching agreement in the field of Natural Sciences for the protection and sustainable management of the Earth's geological resources and geological heritage with UNESCO ADG/SC.

3.3. Management of the open call for the replacement of three new IGCP Council members and ten Scientific Board members

3.3.1 IGCP Council

According to the Statutes of the International Geoscience and Geopark Programme (IGGP) and the Operational Guidelines for the International Geoscience Programme (IGCP) approved by the 38th General Conference, the IGCP Council shall be composed of six ordinary members, appointed by mutual agreement by the Director-General of UNESCO and the President of the International Union of Geological Sciences (IUGS). Initial six members of the Council were appointed by the Director-General of UNESCO in December 2016 indicating those whose initial term shall expire after two years. To renew the membership of the three Council members in 2018, on the 31 December 2017, the IGCP Secretariat opened a call using the channels of the IUGS, the IGCP National Committees and the UNESCO National Commissions to reach potential new members. The IGCP Council members shall consist of high-level experts who are actively engaged in scientific research related to the objectives of the IGCP.

By the 12 March 2018 deadline, the IGCP Secretariat had received 106 applications from 36 member states, of which 62 applications from 33 member states were qualified to be IGCP council members for the three currently open positions, including 20 applications from qualified female candidates (from 14 member states).

Keeping in mind the priority gender in UNESCO and ensuring a good geographical distribution of the Council members, while making sure we will still have highly qualified members, the below listed international experts were approved by Prof Qiuming Cheng, the president of the IUGS, and nominated by UNESCO Director General Audrey Azoulay. They started their activities in October 2018.

- Mr Sobhi Nasir (Jordan/Canada): Earth resources
- Mrs Weijian Zhou (China): Global Change
- Mr Carlos Vargas Jimenez (Colombia): Geohazards

UNESCO and IUGS would like to thank Mr Guy Narbonne (Canada), Ms Maria- Julia Orgeira (Argentina) and Mr Alik Ismail-Zadeh (Geohazards theme Council member, Azerbaijan) for their efforts to promote and support IGCP as outgoing IGCP council members since their initial appointments in 2016.

3.3.2 IGCP Scientific Board

The IGCP Council shall be assisted in its scientific duties by a Scientific Board established for this purpose jointly by UNESCO and IUGS on the recommendation of the IGCP Council.

All Scientific Board members are appointed for a term of four years and are eligible for an appointment of a second term as determined by the IGCP Council.

In 2018, due to the completion of their initial terms, five scientific board members left the IGCP Scientific Board and following the decision of the Council to extend the board membership, ten new members were appointed following the nominations of the IGCP Council members. IGCP Secretariat thanks to below listed experts for their services and contributions to the IGCP.

- Mr Reimar Seltmann (UK)
- Ms Anne-Sylvie André-Mayer (France)
- Ms Suzanne Paradis (Canada)
- Mr Carlos Jaramillo (Colombia)
- Ms Mary Anderson(USA)
- Mr Brian Menounos (Canada)
- Mr Stephenson Randell (UK)
- Mr Robert Wright (USA)
- Mr Jafar Omrani (Iran)

IGCP Secretariat also welcomes below listed experts to IGCP Scientific board.

- Ms Claudia Alicia Marsicano (Argentina)
- Mr Yirgu Gezahegn (Ethiopia)
- Ms Irasema Alcántara Ayala (Mexico)
- Mr Mohsen Ghafory-Ashtiany (Iran)
- Mr José Ignacio Valenzuela Rios (Spain)
- Mr Frank Schwartz (USA)
- Mr Alfred Muzuka (Tanzania)
- Ms Liliana Castro (Argentina)
- Mr Carles Canet-Miquel (Mexico)
- Ms Baatar Munkhtsengel (Mongolia)

Ms Maria Julia Orgeira from Argentina (2016-2018 Council member for the Global Change theme) and Mr Guy Narbonne from Canada (2016-2018 Council chairperson) kindly agreed to continue to serve for the Scientific Board for two years to support new Council members during the early years of their terms.

IGCP Scientific Board consists of **53** experts from **41** Member States ([Annex 9b](#)).

3.4. UNESCO IGCP Secretariat Participation in the International Conferences to disseminate the achievements of the IGCP

In 2018, Dr Ozlem Adiyaman from UNESCO IGCP Secretariat presented IGCP's objectives and achievements during below listed International Conferences:

- [European Geosciences Union General \(EGU\) Assembly 2018](#) was organized in Vienna, Austria from 7 to 13 April 2018 with the participation of 15,075 scientists from 106 countries participated, of which 53% were under the age of 35 years. UNESCO IGCP Secretariat and our IGCP partner the International Union of Geological Sciences (IUGS) and the Commission for the Geological Map of the World (CGMW) jointly hired a booth to present the IGCP programme during the EGU 2018 Assembly in Vienna and received inquiries from young scientists about the IGCP.
- [Resources for future generations \(RFG\) 2018](#), the premier international conference on Energy, Minerals, Water and the Earth, was organized in Vancouver, Canada, from 16 to 22 June 2018. This major international conference examined the critical natural resources on which humanity depends, from minerals and water to energy. It attracted around 2,000 attendees and was organized by the IUGS (International Union of Geological Sciences). UNESCO IGCP Secretariat was invited by our IGCP partner, IUGS, to present the programme during this conference. Dr Adiyaman made oral presentations about the IGCP and participated several sessions of keynote speeches and seminars related to the UNESCO Earth sciences section, and met several industry and academic partners who are interested collaborating with the IGCP in the future.
- [The 8th International Conference on UNESCO Global Geoparks](#) was organized in Adamello Brenta UNESCO Global Geopark in Italy from 10 to 15 September, 2018. The UNESCO IGCP Secretariat presented the work of the International Geoscience Programme and invited UNESCO Global Geoparks members to participate in this programme. This conference helped to disseminate the success of the IGCP to the representatives from the 140 UNESCO Global Geoparks programmes.
- [The 10th Jeju Water World Forum](#) was organized from 9 to 13 October 2018, in Jeju Island, the Republic of Korea by the Jeju Province Development Corporation (JPDC). In February 2018, UNESCO's International Geoscience and Geoparks Programme (IGGP) welcomed a new partner, the Jeju Province Development Corporation (JPDC) of the Republic of Korea. JPDC invited Dr Ozlem Adiyaman from IGCP Secretariat to participate in the 10th Jeju Water World Forum. As part of our aim to further promote the work of the IGGP, particularly, the work of the Hydrogeology Theme of the IGCP and UNESCO Global Geoparks, UNESCO

Natural Sciences Sector agreed to attend the annual event to give an update of the cooperation between IGGP and the JPDC as part of the project partnership agreement signed in February 2018. During the opening ceremony of the forum, Dr Adiyaman provided a keynote lecture about the IGGP to 450 participants of the forum. This forum was an excellent opportunity to extend the outreach of the IGGP to the representatives of the Asia Pacific region.

- **Organization of IGCP 636 project presentation meeting at UNESCO HQ to the representatives of UNESCO delegations:** The growing interest in renewable energies is an attractive opportunity for the next generation geoscientists to help fulfil clean energy needs globally and this is reflected in IGCP 636: Characterization and Sustainable Exploitation of Geothermal Resources. Four projects leaders travelled to France to participate in the European Geothermal Workshop in Strasbourg where the IGCP636 team presented their scientific achievements. IGCP funds partly support the participation of the scientists to this important international event. On 5 October 2018, IGCP Secretariat organized an information meeting for the representatives of Colombia, Chile, Canada, France, Belgium, Iceland, Sweden, Madagascar delegations to UNESCO. IGCP 636- Young scientist project leaders presented their work and achievements to the representatives of their delegations and discussed about their international collaboration under the UNESCO/IGCP umbrella.

3.5 Collaboration UNESCO National Commissions and IGCP National Committees

National Commissions

UNESCO is the only UN Agency to have a global network of national cooperating bodies known as National Commissions for UNESCO. National Commissions make part of the overall constitutional architecture of the Organisation.

Set up by their respective governments in accordance with the Article VII of the UNESCO Constitution, the National Commissions operate, on a permanent basis, for the purpose of associating their governmental and non-governmental bodies in education, sciences, culture and communication with the work of the Organisation.

Presently, there are 199 National Commissions for UNESCO across the world. They constitute a truly global family with an authoritative network of stakeholders, partners and experts and offer a comparative advantage to the Organisation within the United Nations system. This network plays a significant role in the liaison with partners, the coordination of activities, and the promotion of UNESCO's visibility at the country level.

IGCP National Committees

The IGCP National Committees are non-profit organisations that represent IGCP in a particular country. The committees act as agencies of consultation, liaison, mobilisation, and coordination with national partners, including the civil society. They also make substantial contributions in the advancement of UNESCO's objectives and in project implementation.

The major aim of a National Committee is the organisation and coordination of the IGCP-related outreach in the country and to sustain linkages of the national geological institutions and individuals with the international scientific community, and notably the IGCP. To this end, the IGCP Secretariat is in regular contact with the National Committee and invites the Committees' Chairpersons to the annual IGCP Scientific Board meeting, which is usually held in February.

IGCP Committee:

- endorses new IGCP project proposals coming from the country's geoscientific community before they are sent to the IGCP Secretariat;
- proposes candidates for the IGCP Scientific Board;
- stimulates the participation of their country's geoscientists in new IGCP projects and enables them to share the ongoing, internationally relevant geoscience research.

The running of the IGCP Committees is usually backed up by national funding. IGCP Committees are, for example, established by and hosted at a variety of governmental and non-governmental organisations, such as National Academies, Universities and Institutions, Geological Surveys, Geological Societies, Ministries, industry and/or other professional bodies.

There are currently 44 IGCP National Committees for UNESCO across the world.

UNESCO IGCP Secretariat identified that in some countries UNESCO National Commissions and IGCP National Committees are not connected and not always aware of each other's work. Another issue that has also been recognised is that not all UNESCO Member states have an IGCP National Committee.

In 2018, IGCP Secretariat started a new initiative to:

- Connect UNESCO National Commissions with IGCP National Committees,
- To increase the outreach of the IGCP National Committees to all UNESCO member states.

To realise above points, IGCP Secretariat organised several meetings/workshops in Paris, Ankara and London between these two UNESCO bodies to better connect them and will continue this activity in 2019.

3.6 IGCP 2018 New Project Proposal Call

UNESCO IGCP Secretariat launched the open project proposal submission call for new IGCP projects early 2018 by using UNESCO website, contacting IGCP networks, social media sites as well as the communications channels of our IGCP partner organisation IUGS.

IGCP Projects must focus, inter alia, on producing high-quality science of international importance and societal relevance, enabling interdisciplinary cooperation, and promoting international participation, including scientists from developing countries.

Project proposals may be submitted by individuals or groups to the IGCP Secretariat accompanied by a letter of endorsement from one of the project leader's National IGCP Committees.

The deadline for project proposals was on 15 October 2018 and the IGCP secretariat received 21 new project proposals, which is a substantial increase from previous years (there were 13 proposals received in 2017 and seven proposals received in 2016). We believe that this considerable increase in IGCP project proposals is due to the extensive outreach and communication activities led by the IGCP Secretariat in 2017 and 2018 by participating to the international conferences and forums.

In 2018, the IGCP Secretariat established a new process to screen and review the content of new proposals by completing a checklist approved by the IGCP Council. Following the initial content verification the Secretariat distributed 21 new project proposals ([Figure 1](#)) to the IGCP Scientific Board members as of 15 November along with completed checklists which facilitated the work of Scientific Board member's. These proposals will be evaluated by the IGCP Council from 18 to 21 February 2019 during the 4th IGCP Council session.

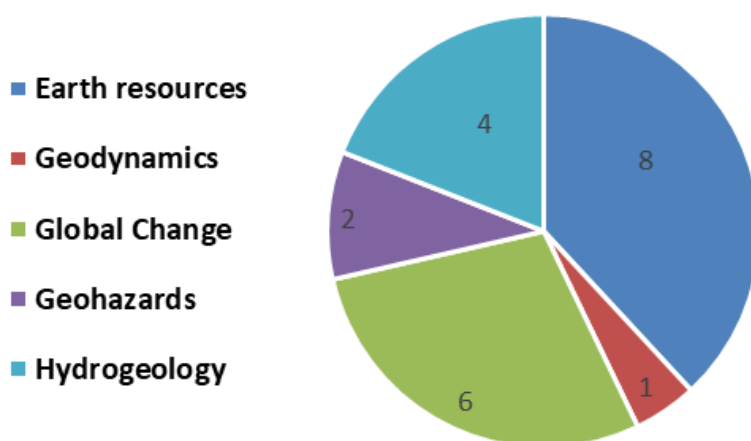


Figure 1: 2018 New IGCP project proposals distribution by theme.

A total of **108** project leaders from **49** member states jointly submitted **21** new IGCP project proposals which are requesting funding from 2019 ([Figure 2](#)).

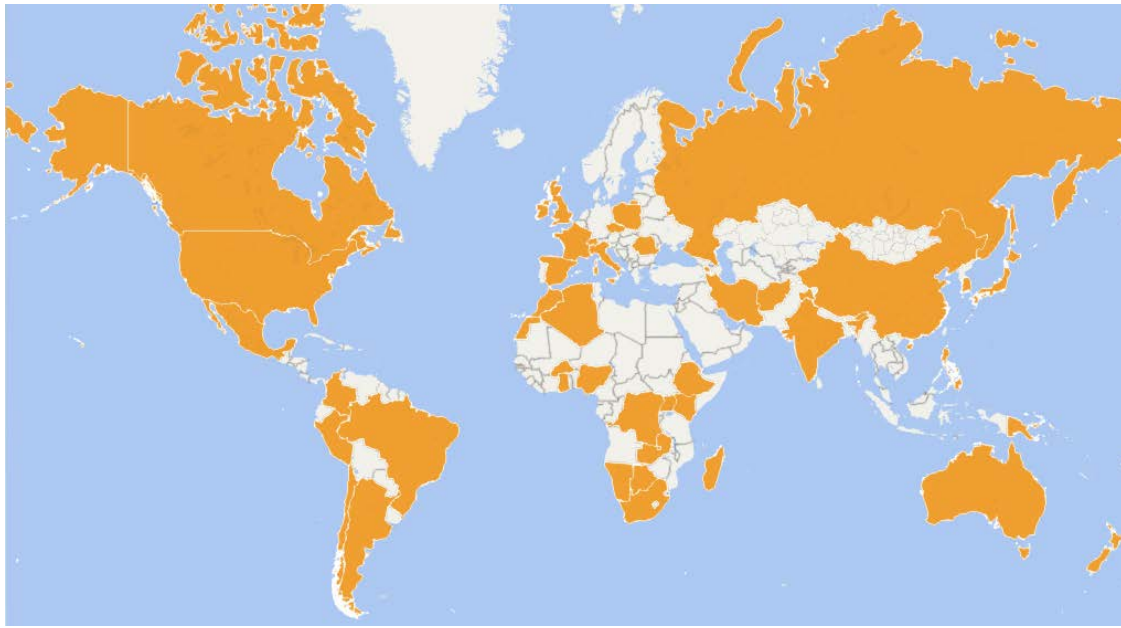


Figure 2: 2018 New IGCP project proposals distribution by project leader countries.

4. IGCP Projects 2018 Annual reports summary

The Council of the International Geoscience Programme (IGCP) met in February 2018 to select new projects that will be supported by UNESCO and the International Union of Geological Sciences (IUGS), Democratic republic of China as well as Jeju Province Development Corporation Supporting (JPDC) from South Korea during 2018.

IGCP council members reviewed **13** new projects proposals and the **21** active IGCP projects which had an outreach to **111** countries in 2017.

The IGCP council decided to continue funding sixteen ongoing projects and to nominate seven new IGCP projects. Four projects were eligible to keep their IGCP status during 2018 without receiving funding. Following the decisions taken during the 3rd IGCP Council meeting in 2018, **27** IGCP projects were active and **22** IGCP projects received financial support (Figure 3).

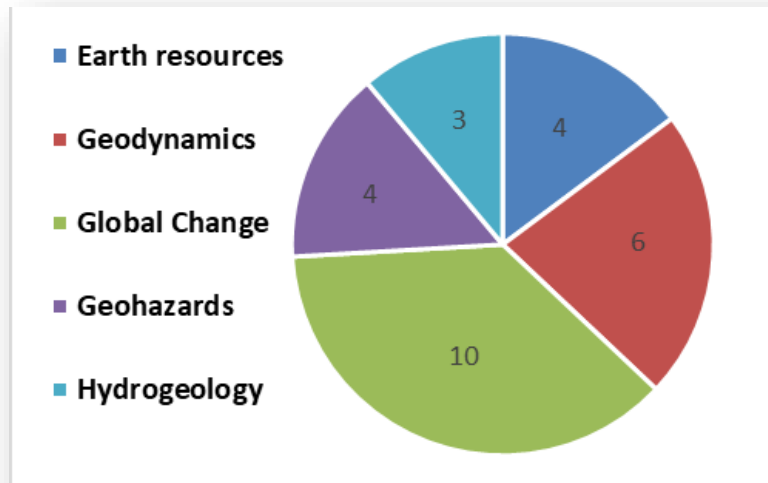


Figure 3: Distribution of 27 active IGCP projects by theme in 2018.

This report summarises the results of all **27** IGCP projects which submitted their annual reports as of 31st January 2018.

4.1. International Collaborations

In 2018, the scientists from **105** countries participated in the delivery of these **27** active IGCP projects (Figure 4).

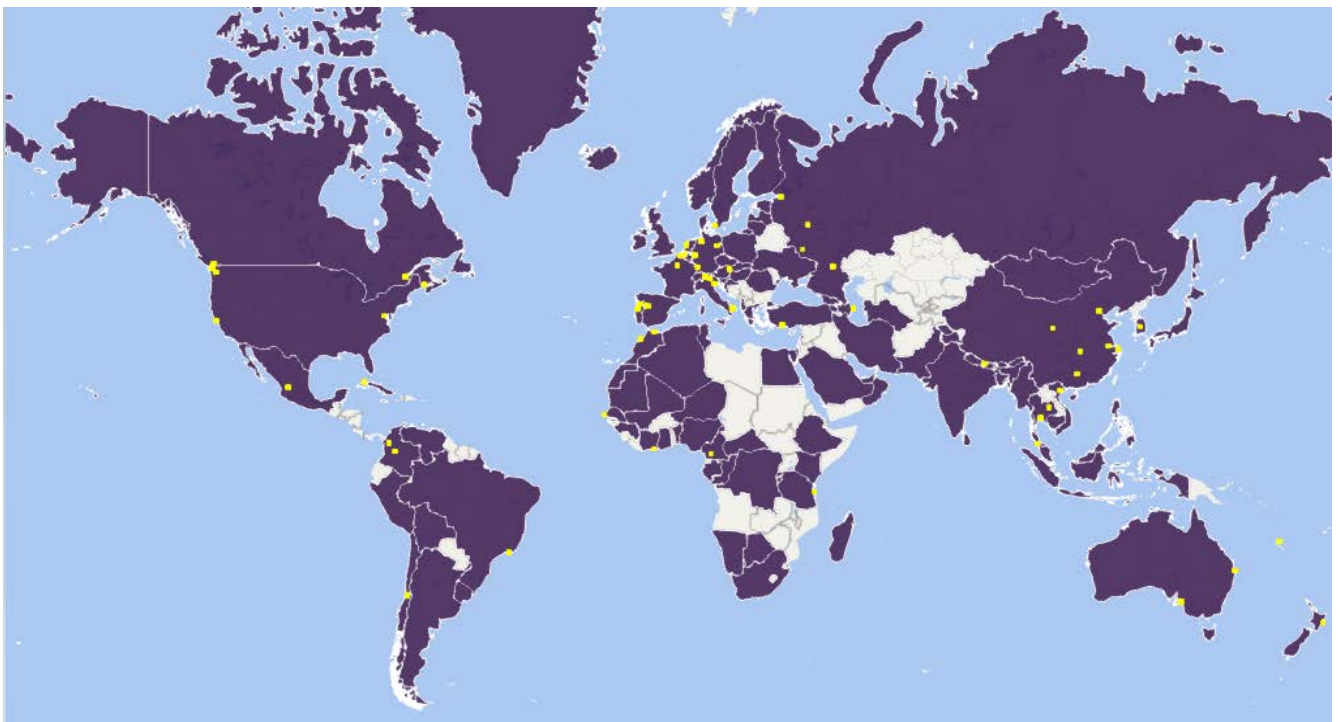


Figure 4: World map showing IGCP projects participating member states (in purple) in 2018 and IGCP meetings sites (in yellow).

In 2018, Latin American and Caribbean participation and Arab State participation both increased, however African country participation decreased from 30 member states to 28. [Figure 5](#) displays the number of countries in each region that are active in the 27 IGCP projects in 2018, and [figure 6](#) displays the number of member states involved in each project.

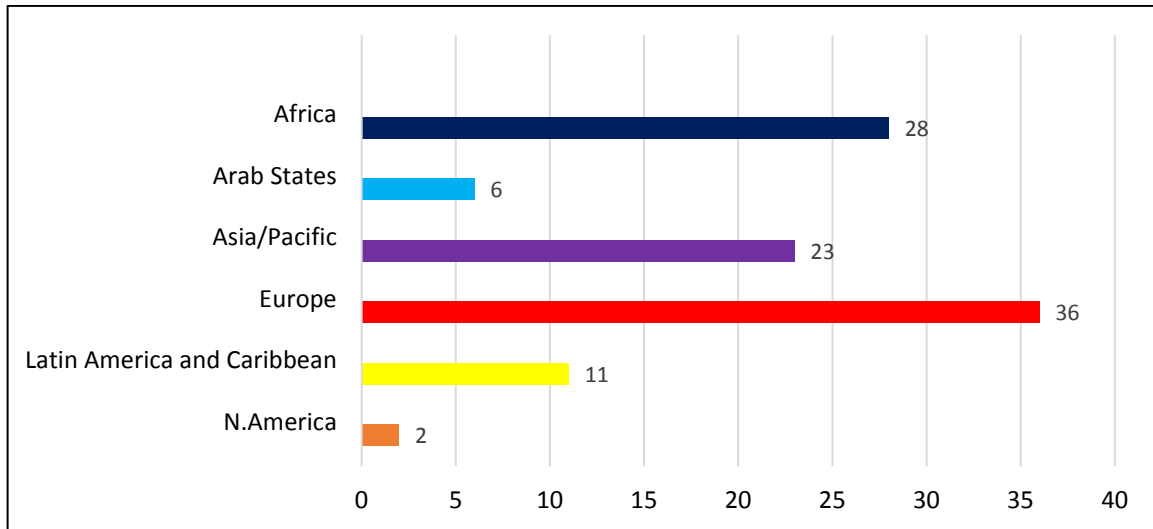


Figure 5. Number of participating Member states by region.

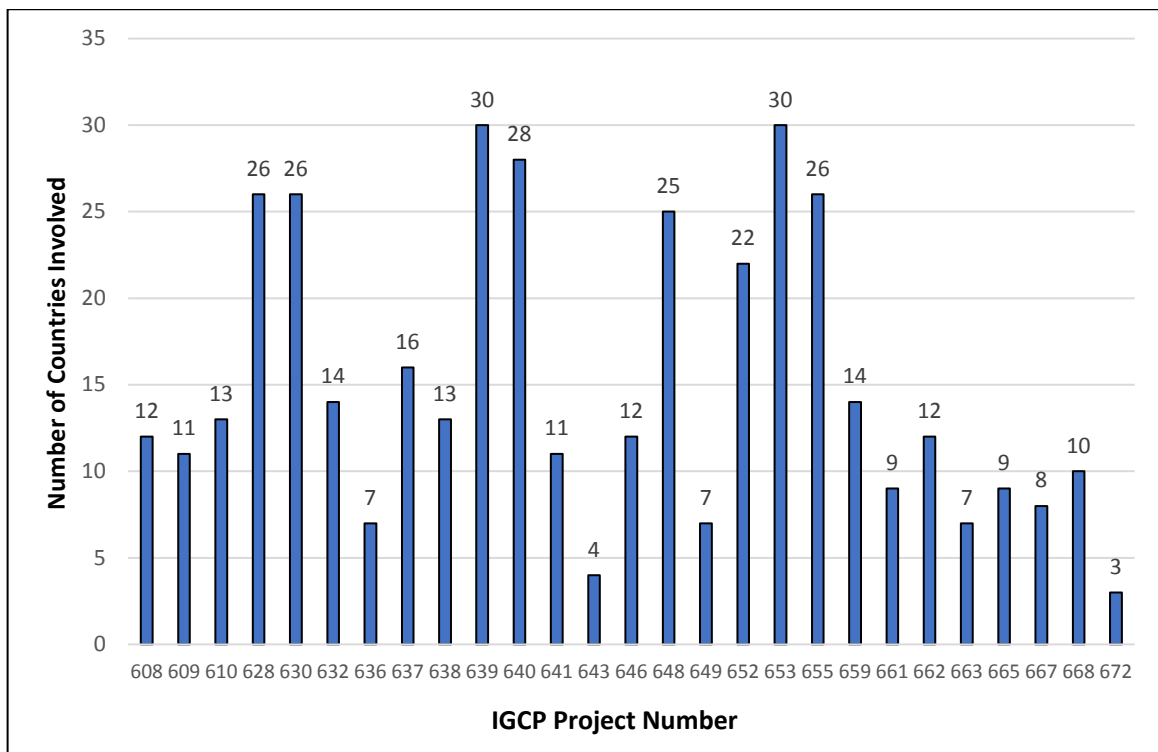


Figure 6. Number of Countries Involved in Each IGCP Project in 2018.

4.2. IGCP Project Leadership

In 2018 a total number of **160** IGCP Project leaders came from **57** different countries (Figures 7 & 8).

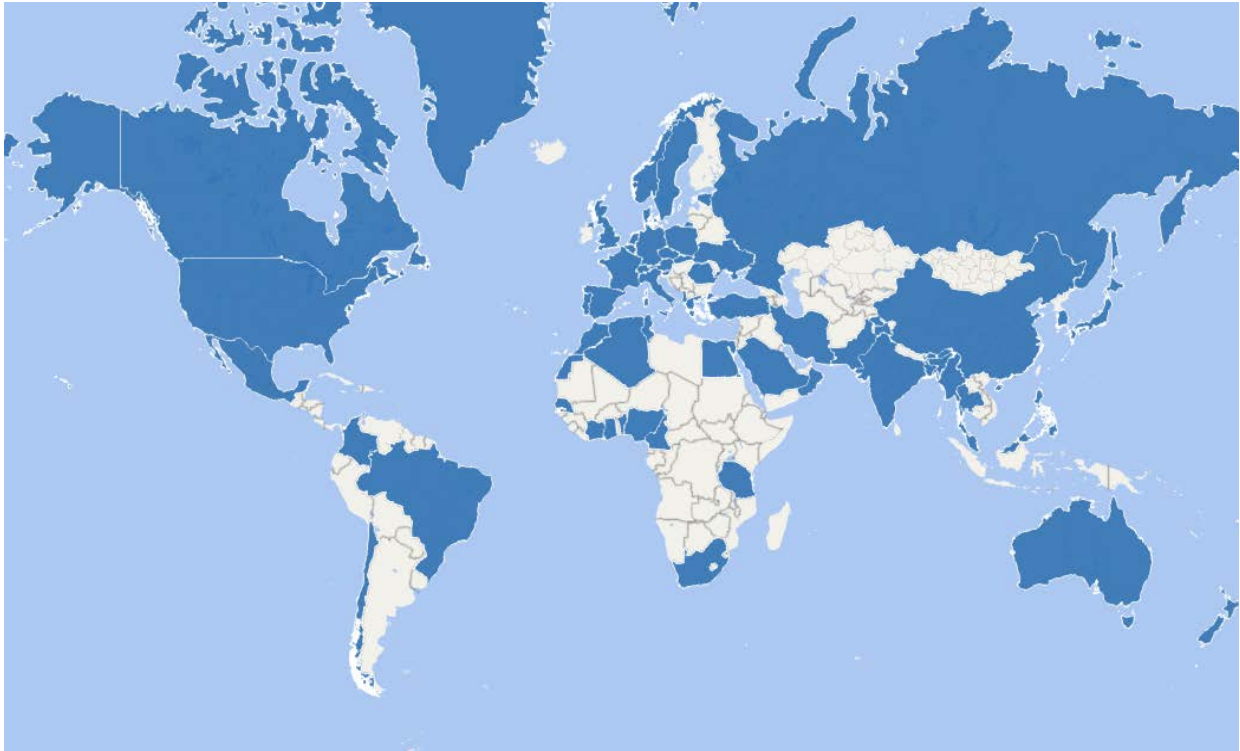


Figure 7: IGCP 2018 Project Leaders' Countries

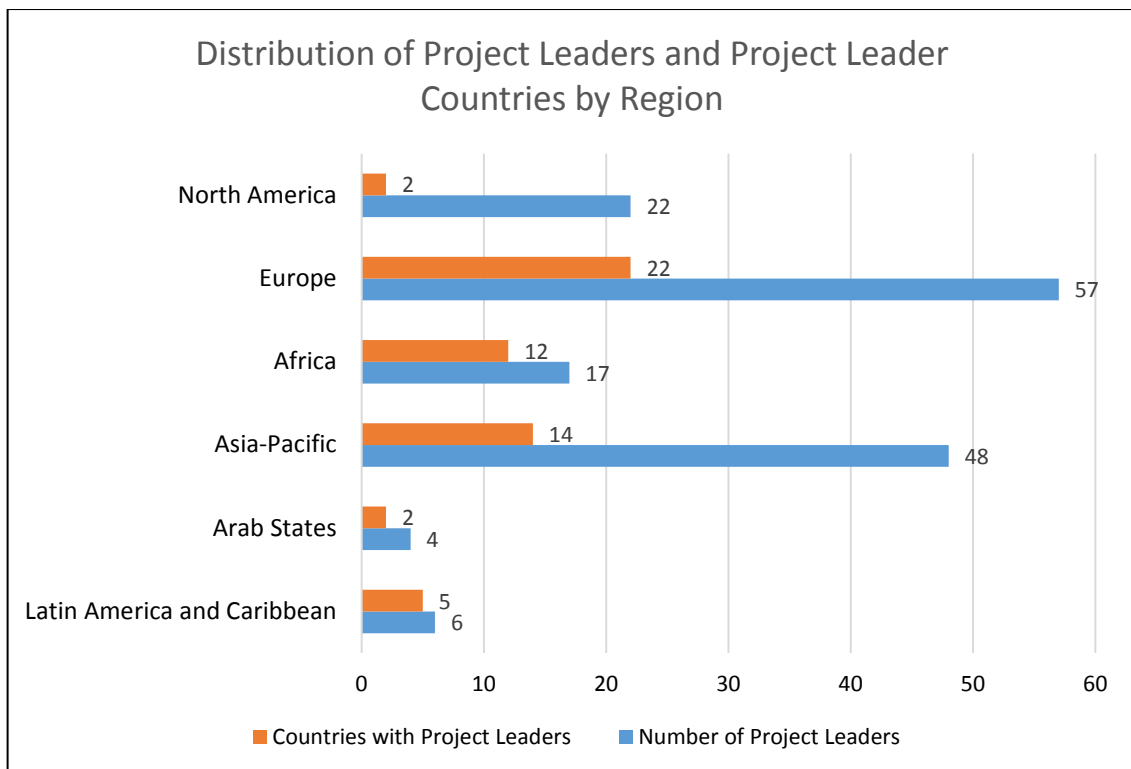


Figure 8: Distribution of Project Leaders and Project Leader Countries by Region

Each IGCP project is led by several project leaders from different countries, for example IGCP 630 project was led by 14 project leaders from 9 countries and IGCP 637 had 13 project leaders came from 12 different countries ([Figure 9](#)).

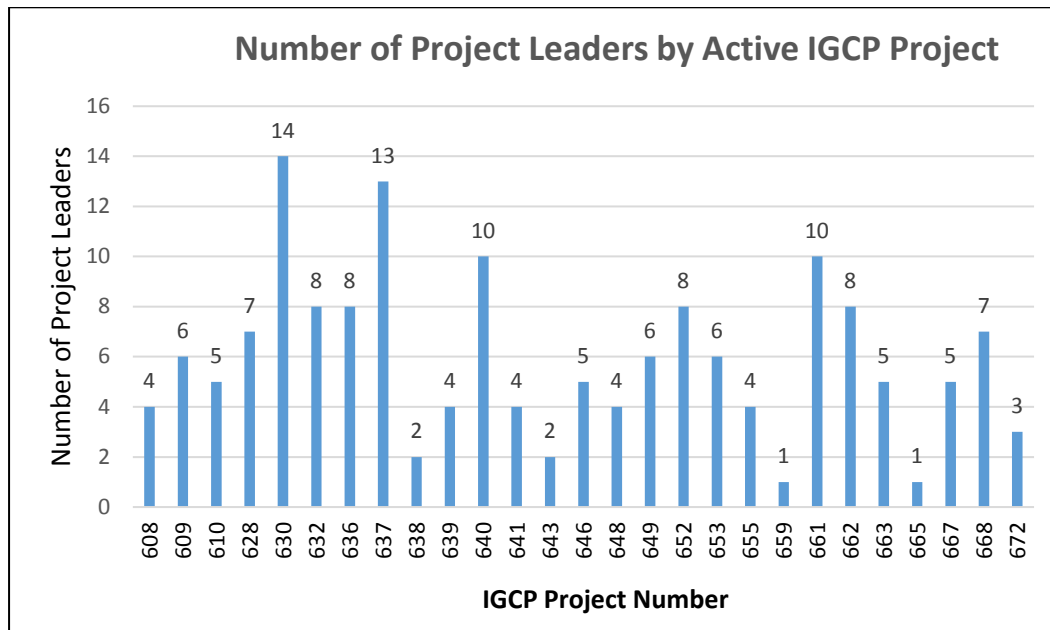


Figure 9: Number of Project Leaders in each IGCP Project.

4.3. IGCP Project Participant Demographics

According to the project annual reports, a total of **160** project leaders brought together **4485** project participants to deliver the objectives of the **27** active IGCP projects that received financial supports from IUGS and UNESCO. Of all the project participants, **56%** are young scientists (<35 years old) and **65%** of all participating scientists come from developing nations. The overall analysis of the 2018 annual reports confirms the trend observed during last four years which shows that IGCP project outreach and diversity have increased continuously over these years. Gender equality is one of UNESCO’s priority areas, and the IGCP projects show very promising results, with women comprising of a total of **32%** of all participating scientists in 2018 ([Figure 10](#)).

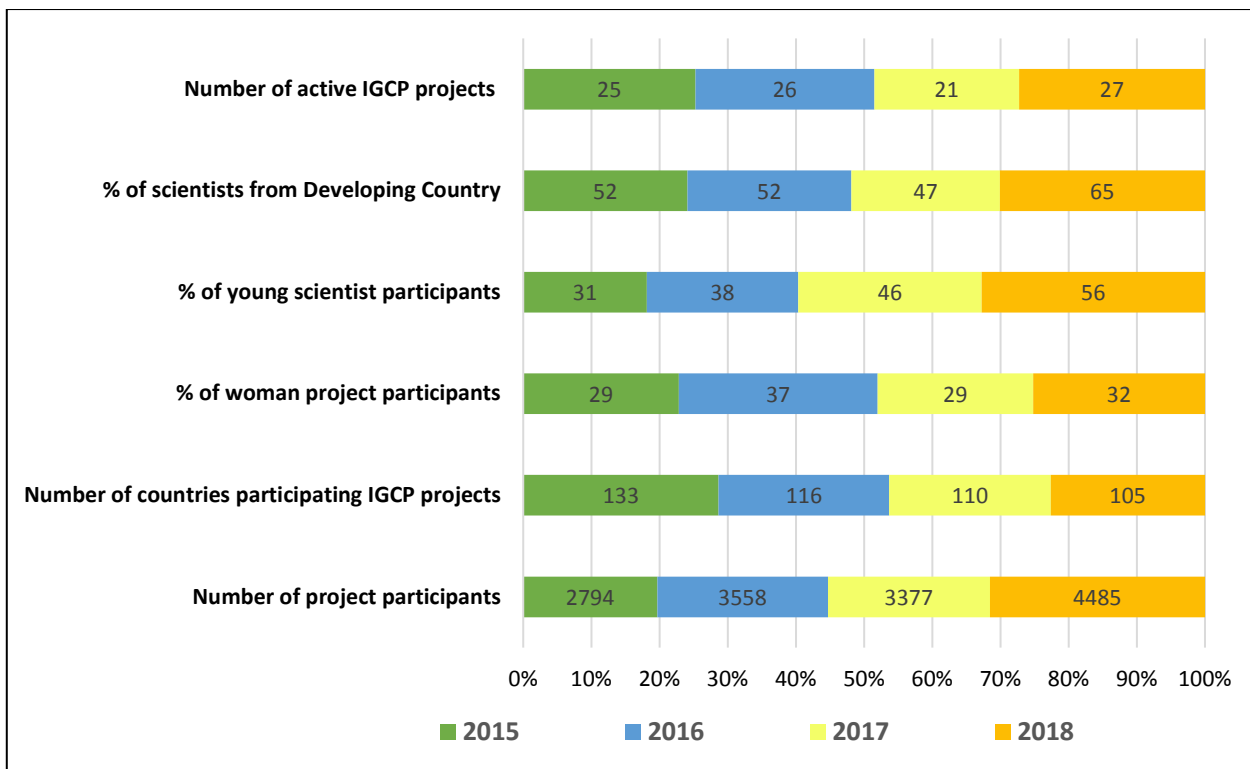


Figure 10: Comparison of IGCP projects participants between 2015 and 2018.

Additionally, the 2018 annual reports indicate that **27%** of the 160 project leaders are women. Women also make up **32%** of the 2924 participants from developing countries. These percentages increase in the young scientists group, where out of 2506 young scientists, **34%** are young women (Figure 11).

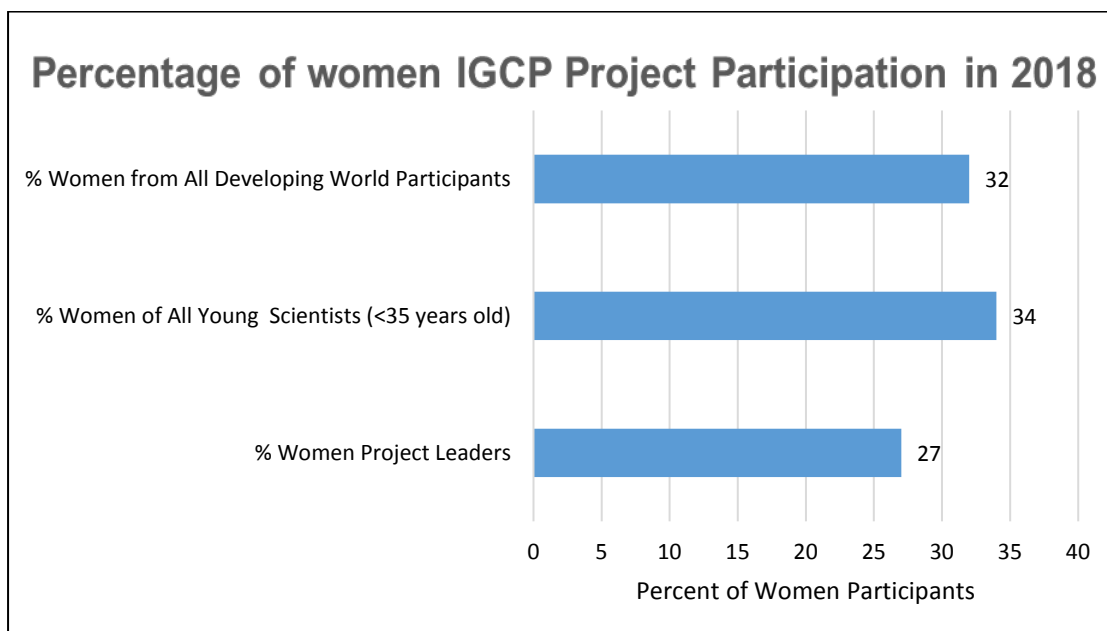


Figure 11: Women scientist participation in 2018 (in percentages).

4.4. Project Meetings

In 2018, a total number of **67** IGCP project meetings took place in **33** countries (figure 4). Of these, a total of **26** IGCP project meetings, taking place in **16** countries, were financially supported by the IGCP programme funds. Annex 10 shows the details of 26 IGCP project meetings funded jointly by the IUGS and UNESCO.

5. IGCP Council member biographies and 2018 IGCP Themes highlights

As stated previously, the IGCP Council, supported by the Scientific Board (Annex 9), is responsible for evaluating project proposals according to the IGCP Guidelines, as well as for the quality assessment of projects that are in progress.

The IGCP Council is composed of six members, all of which are high-level experts. The IGCP Council consists of a Chairperson and five theme group leaders who manage and represent the collective reviews and process of evaluating projects within their appointed theme. Once a year, the IGCP Council assisted by the Scientific Board assess the progress of about half a dozen existing projects as provided in their annual reports and also critique several new project proposals for the future funding. They have assembled at UNESCO Headquarters on the occasion of the IGCP 3rd Council meeting from 19 to 21 February 2018.

During the IGCP Council 2018 session, the IGCP Council Chairperson was Dr Guy Narbonne (Canada), a Professor and Research Chair in the Department of Geological Sciences and Geological Engineering at Queen's University in Canada. He has been a member of the IGCP Scientific Board since 2008, and previously served as Theme Leader for "Global Change: for four years (2013-2016) before beginning his role as Chair of IGCP in 2016. Dr Narbonne's research centres on the early evolution of complex multicellular life 1000-500 million years ago (Neoproterozoic–Cambrian) and the inter-relationship between this biotic evolution and coeval changes in the world's oceans and atmosphere.

Due to the completion of his two years term and the renewal of the IGCP Council members, the IGCP Council members voted that Dr Brigitte Vlaswinkel will be acting chairperson for the evaluation of IGCP 2018 projects and new proposals for the preparation of the 4th IGCP Council meeting which will be held from 18 to 21 February 2019.

[Dr Brigitte Vlaswinkel](#) obtained her PhD in Marine Geology and Geophysics at University of Miami in 2007. She presently works as Head of Research at a young, clean-tech company Oceans of Energy, which specializes in floating renewables and ocean energy. Besides this, Dr Vlaswinkel is the Environmental Impact Lead at The Ocean Cleanup.

5.1. Earth Resources: Sustaining our Society

Knowledge on natural resources - including minerals, hydrocarbons, geothermal energy, and water - and their management is the frontline of the struggle for more sustainable and equitable development. The environmentally responsible exploitation of these resources is a challenge for geoscience research. The progress of technological development is equally bound to this premise. Annex 1 details the 2018 highlights of the IGCP Earth Resources theme drafted by Prof. Sobhi Nasir (Jordan/Canada) who replaced the position left by Dr Brigitte Vlaswinkel (Netherlands). Dr Vlaswinkel represented the Earth resources theme during 2017 and 2018 IGCP Council meetings.

[Professor Sobhi Nasir](#) graduated in Mineralogy/Petrology at Wurzburg University-Germany (1986). Prof. Nasir Joined the Sultan Qaboos University in Oman in 2004 as a head of Department and now he is the Director of Earth Sciences Research Centre and the UNESCO Chair for Ophiolite Studies as well as an Adjunct Professor at Western University, Canada.

5.2. Global Change and the Evolution of Life: Evidence from the geological record

Changes in the Earth's climate and of life on Earth are preserved in the geologic record. Ice and dust records, terrestrial and ocean sediments, and sequences of fossil plant and animal assemblages all tell the story of our Planet, which holds important lessons about present-day environmental challenges and the ways to mitigate and manage environmental damage. Annex 2 details the 2018 highlights of the IGCP Global Change theme drafted by Prof Weijian Zu (China) who replaced the position left by Dr María Julia Orgeira (Argentina) who represented the IGCP Global Change theme during 2017 and 2018 IGCP Council meetings but left the council due to the termination of her initial two years term.

[Dr Weijian Zhou](#) was graduated from Guizhou University, (1976) and a PhD in Geology from North-West University, China (1992-1995). Currently, she is the director and professor of the Xi'an Accelerator Mass Spectrometry (AMS) Centre, the director of the academic board of State Key Laboratory of Loess and Quaternary Geology, CAS (Chinese Academy of Sciences).

5.3. Geohazards: Mitigating the risks

Geohazards include earthquakes, volcanic activity, landslides, tsunamis, floods, meteorite impacts and the health hazards of geologic materials. Geohazards can range from local events such as a debris slide or coastal erosion to events that threaten humankind (e.g., supervolcano eruption or meteorite impact). Earth scientists undertake research to better understand such hazards and contribute to risk reduction. Annex 3 details the 2017 highlights of the IGCP Geohazards theme prepared by Dr Carlos Vargas Jimenez (Colombia) who replaced the position left by Dr Alik Ismail-Zadeh (born in Baku, Azerbaijan) who represented the Geohazards theme during the February 2017 and 2018 IGCP Council meetings but left the Council due to the end of his initial two years term.

[Dr Carlos Alberto Vargas J.](#) is Professor in the Department of Geosciences of the Universidad Nacional de Colombia at Bogota, where is Director of the Geophysics Research Group, and Director of the Seismological Network of this institution.

5.4. Hydrogeology: Geoscience of the water cycle

Life on Earth depends on water and its sustainable use is crucial for continued human existence. Earth's water resources include surface/ground water, ocean water, and ice. The study of Earth's water involves understanding and managing both surface and ground water systems, including sources, contamination, vulnerability and history of water systems. Annex 4 details the 2018 highlights of the IGCP Hydrogeology theme summarised by Dr Yongje Kim who is the IGCP council member representing Hydrogeology theme and the rapporteur of the IGCP Council.

[Dr Yongje Kim](#) is a principal researcher in the Groundwater and Eco hydrogeology Research Center of the Geologic Environment Division at the Korea Institute of Geoscience and Mineral Resources (KIGAM). He received his PhD in Geology (Environmental Hydrogeochemistry) at Texas A&M University, USA in 1995.

5.5. Geodynamic: Control our environment

Our habitable environment at the Earth's surface is linked and controlled by processes occurring deep within the Earth. Earth scientists use, inter alia, geophysical techniques to study deep Earth processes ranging from changes in the Earth's magnetic field to plate tectonics to understand better the Earth as a dynamic planet. Those processes are also relevant to natural resource exploration, distribution and management of groundwater resources and the study and mitigation of natural hazards such as earthquakes. Annex 5 details the 2018 highlights of the IGCP Geodynamics theme drafted by Dr Nellie Mutemeri who is the IGCP Council member for the Geodynamic Theme.

[Dr Nellie Mutemeri](#) is an Associate Professor in the School of Mining Engineering at the University of Witwatersrand in South Africa. She also runs a boutique consulting firm MutConsult which specializes in mining, energy and climate change. Dr Mutemeri's other areas of research interest in geology include geochemistry and ore genesis of Archaean gold deposits in the greenstone belts of Southern Africa and fluid inclusion studies.

6. IGCP 2018 Financial Summary

In 2018, the total IGCP budget was \$149,327 USD (Annex 6). 22 IGCP projects received grants and the average support per project was around \$6,800 USD of seed funding per project. In 2018, 22 IGCP projects were co-sponsored by UNESCO, IUGS (\$60k), the People's Republic of China (\$20k) and the JPDC (\$40k) of the of the Republic of Korea.

7. Conclusions

The Council of the International Geoscience Programme (IGCP) held its 3rd d Session in February 2018 and evaluated the progress of **21** existing projects as provided in their annual reports and also assessed 13 new project proposals that requested new funding.

During 2018, 27 IGCP projects were active across the following geological themes: Global Change and the Evolution of Life, Earth Resources, Geohazards, Hydrogeology, and the Geodynamic Control of our Environment.

In 2018, UNESCO worked closely with the International Union for Geological Sciences (IUGS) to mobilise global cooperation in the Earth sciences through the International Geoscience Programme (IGCP). IUGS's financial contribution to IGCP helped the continuity of this program, with a heritage of over 45 years, providing a platform for scientists from across the world to push the frontiers of knowledge forward through concrete scientific research projects. IGCP was presented during the EGU 2018 Assembly in Vienna and RFG 2018 in Vancouver in collaboration with the IUGS.

In 2018, UNESCO's International Geoscience and Geoparks Programme (IGGP) welcomed a new partner, the Jeju Province Development Corporation (JPDC) of the Republic of Korea, this new partnership enabled IGCP to provide higher seed funds than previous years.

In 2018, the People's Republic of China (PRC) continued their supports to the IGCP. The PR of China provides annually \$20k to the IGCP since 2009 and this contribution is very important for the outreach of the IGCP.

Three new IGCP Council members and ten new Scientific Board members were successfully appointed in 2018 and smoothly secured the continuity of the scientific evaluation of the programme.

IGCP Secretariat actively presented the success of the programme during the International conferences, these outreach activities increased the visibility of the IGCP and resulted the submission of higher number of new IGCP project proposals.

In 2018, 160 project leaders collaborated with at least 4485 project participants to deliver the objectives of 27 active IGCP projects.

IGCP projects published over 300 scientific papers, contributed scientific research regarding several UN SDGs (Annexes 1-5).

In 2018, 26 IGCP project meetings (Annex 10) have successfully been organised by building bridges between disciplines and between 105 member states, including young ones, with aims of stimulating cutting-edge research and sharing scientific knowledge for the benefit of all.

In 2018, the UNESCO IGCP secretariat worked closely with the IUGS Secretariat and treasurer to provide regular updates about the progress of 27 IGCP projects and their

meetings to the IUGS Secretariat and the wider Earth science community via the dedicated [IGCP website](#).

Annex 1: 2018 Summary of IGCP Earth Resources Theme

Annex 2: 2017 Summary of IGCP Global Change Theme

Annex 3: 2017 Summary of IGCP Geohazards Theme

Annex 4: 2017 Summary of IGCP Hydrogeology Theme

Annex 5: 2017 Summary of IGCP Geodynamics Theme

Annex 6: Active IGCP Projects in 2018, 22 projects received funds from UNESCO, IUGS, JPDC and PR China					
N°	Projects	Theme	Duration	IUGS	UNESCO
608	Asia-Pacific Cretaceous Ecosystems	Global Change	OET		
609	Cretaceous Sea-Level Changes	Global Change	OET		
610	From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary	Global Change	OET		
628	The Gondwana Map Project	Geodynamic	OET		
630	Permian-Triassic Climatic and Environmental Extremes and biotic responses	Global Change	2014-2018		9,000
632	Continental Crisis of the Jurassic	Global Change	2014-2018		6,000
636-Y	Characterization and sustainable exploitation of geothermal resources	Earth Resources	2016-2018	8,000	
637	Heritage stone designation	Earth Resources	2015-2019	6,000	
638	Paleoproterozoic Birimian geology for sustainable development	Earth Resources	2016-2020		4,500
639	Sea Level Changes from minutes to millenia	Global Change	2016-2020	8,000	
640	Significance of Modern and Ancient Submarine Slope and Landslides	Geohazards	2015-2019		9,000
641	Deformation and fissuring caused by exploitation of subsurface fluids	Geohazards	2015-2018		4,500
643	Water Resources in Wet Tropics of West-Central Africa	Hydrogeology	2015-2019		4,000
646	Dynamic interaction in tropical Africa	Geodynamic	2015-2018		6,000
648	Supercontinent Cycles an Global Geodynamics	Geodynamic	2015-2019		8,000
649	Diamonds and Recycled Mantle	Geodynamic	2015-2019		4,500
652	Reading Geologic Time	Global Change	2017-2021	6,000	
653	The onset of the Great Ordovician Biodiversification Event	Global Change	2016-2020	6,000	
655	Toarcian Oceanic Anoxic Event	Global Change	2017-2019		6,000
659 New	Seismic Risk Assesement in Africa	Geohazards	2018-2021		9,000
661	The Critical Zone in Karst Systems	Hydrogeology	2017-2021	2,000	
662 New	Orogenic architecture and crustal growth from accretion to collision	Geodynamic	2018-2022	6,000	
663 New	Land subsidence in coastal cities	Hydrogeology	2018-2021	4,500	
665 New	Sustainable use of black soil critical zone	Earth Resources	2018-2022	0	0
667 New	World Map of the Orogens	Geodynamic	2018-2020	4,500	
668 New	Equatorial Gondwana history and Early Palaeozoic Evolutionary Dynamics	Global Change	2018-2022		9,000
672 New	Himalayan glaciers and risks to local communities	Geohazards	2018-2022	9,000	
	TOTAL			60,000	79,500
UNESCO (including JPDC and China contributions) for IGCP 2018 Projects			79,500.00		
UNESCO: Support for 2018 IGCP Board			9,827.00		
Total UNESCO Support			89,327.00		
Total IUGS Support			60,000.00		
TOTAL			149,327.00		

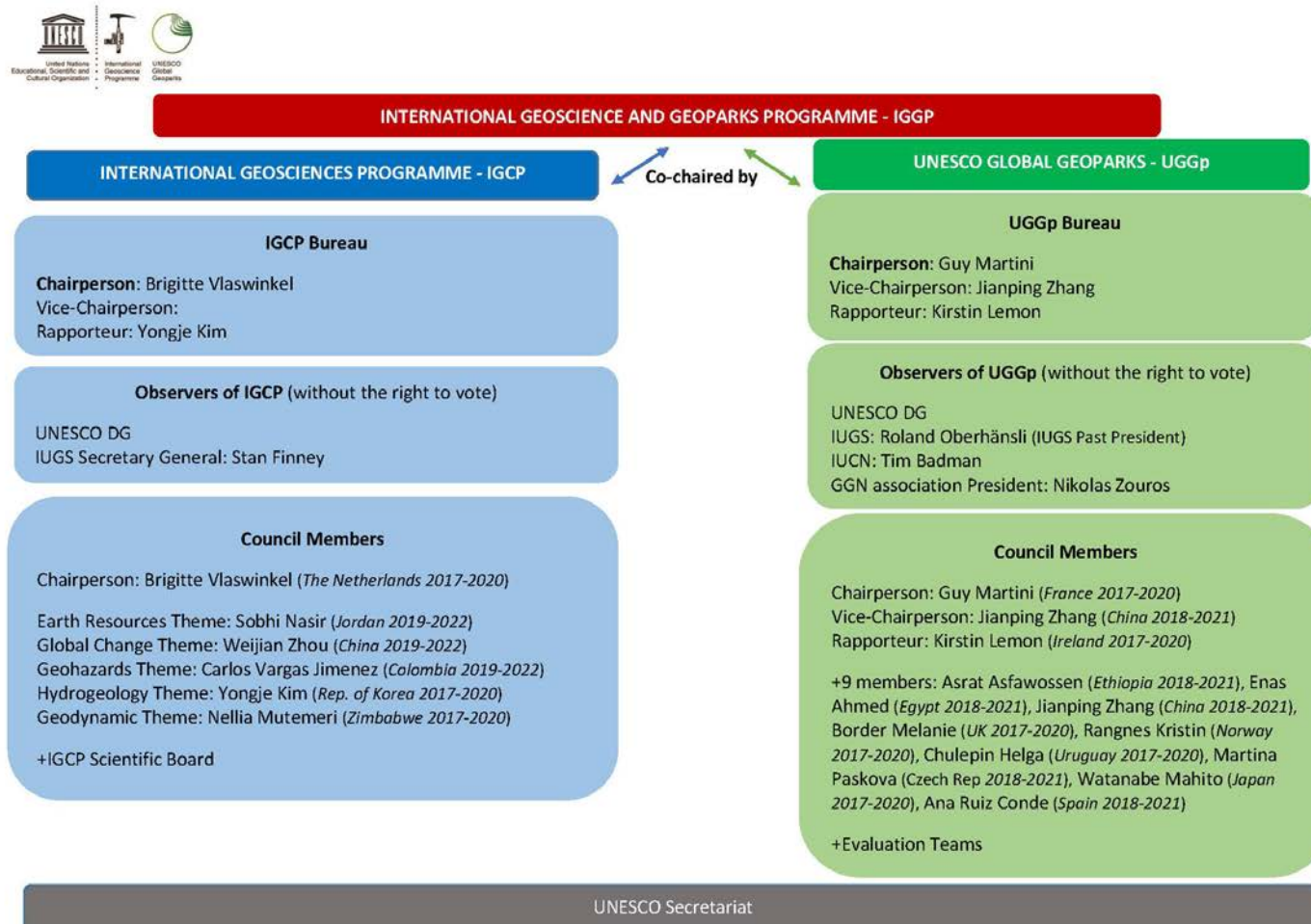
ANNEX 7: 27 Active IGCP projects in 2018 to be evaluated in February 2019

N°	Project Title	IGCP Theme	Duration
EARTH RESOURCES			
637	Heritage stone designation	Earth Resources	2015-2019
636-Y, final year, asking OET	Characterization and sustainable exploitation of geothermal resources	Earth Resources	2016-2018
638	Paleoproterozoic Birimian geology for sustainable development	Earth Resources	2016-2020
665 new	Sustainable use of black soil critical zone	Earth Resources	2018-2022
GLOBAL CHANGE			
608-OET	Asia-Pacific Cretaceous Ecosystems	Global Change	2013-2017
609-OET	Cretaceous Sea-Level Changes	Global Change	2013-2017
610-OET	From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary	Global Change	2013-2017
630, final year asking OET	Permian-Triassic Climatic and Environmental Extremes and biotic responses	Global Change	2014-2018
632, final year, asking OET	Continental Crisis of the Jurassic	Global Change	2014-2018
639	Sea Level Changes from minutes to Millenia	Global Change	2016-2020
652	Reading geologic time in Paleozoic sedimentary rocks	Global Change	2017-2021
653	The onset of the Great Ordovician Biodiversification Event	Global Change	2017-2020
655	Toarcian Oceanic Anoxic Event: Impact on marine carbon cycle and ecosystems	Global change	2017-2019
668, new in 2018	Equatorial Gondwana history and Early Palaeozoic Evolutionary Dynamics	Global change	2018-2022
GEOHAZARDS			
640	Significance of Modern and Ancient Submarine Slope and Landslides	GeoHazards	2015-2019
641-asking OET	Deformation and fissuring caused by exploitation of subsurface fluids	Geohazards	2015-2018
659- new in 2018	Seismic Risk Assesment in Africa	Geohazards	2018-2021
672-new in 2018	Himalayan glaciers and risks to local communities	Geohazards	2018-2022
HYDROGEOLOGY			
643	Water Resources in Wet Tropics of West-Central Africa	Hydrogeology	2015-2019
661	The critical Zone in Karsts Systems	Hydrogeology	2017-2021
663 new in 2018	Land subsidence in coastal cities	Hydrogeology	2018-2021
GEODYNAMIC			
628-OET	The Gondwana Map Project	Geodynamic	2013-2017
646-last year asking OET	Dynamic interaction in tropical Africa	Geodynamic	2015-2018
648	Supercontinent Cycles an Global Geodynamics	Geodynamic	2015-2019
649	Diamonds and Recycled Mantle	Geodynamic	2015-2019
662-new in 2018	Orogenic architecture and crustal growth from accretion to collision	Geodynamic	2018-2022
667-new in 2018	World Map of the Orogens	Geodynamic	2018-2020

ANNEX 8: 21 New project proposals requesting funding from 2019, these proposals will be evaluated in February 2019

N°	Project Title (short)	Main Project Leader country
Earth resources		
674	Environmental and human health impacts of mining activities in Sub-Sahara Africa	Ghana
675	Sandstone-type Uranium Deposits	China
676	Environmental and Human Health impact assessments and mapping of eastern Congo Mining Activities	Congo DR
682	Mine tailing revalorization	Chile
685	Geology for Sustainable Development	UK
686	Pollution characterization and bioremediation in mining areas	Switzerland
687	Bioremediation of environmental impacts of mining activities	Kenya
688	Identification and assessment of desert geosites in Iran for the feasibility study of the establishment of geopark and assessment of negative effect of off-road activities on the development geotourism	Iran
Global Change		
666* Resubmission	Paleodeltas - The History of the Earth	Russia
679	Cretaceous earth dynamics and climate in Asia	PR China
673	The End of a Supereon - Winners and Losers at the Precambrian-Phanerozoic Transition	Australia
681	History of Toxic Phytoplankton in Patagonia	Chile
690	Desert Kites in Persia	Iran
680	A unique biotechnology in the world to revalorize wastewater producing a fertilizing liquid from organic farming land	France
Hydrogeology		
677	An integrated approach to assess the quality of ground water in a Basement Terrain	Nigeria
678	Sustainable Water Management in Afghanistan	Afghanistan
684	The Water-Energy-Food and Groundwater Sustainability Nexus (WEF-GW Nexus)	Lebanon
689	A better management of the Ali-Sabieh aquifer	(Rep of Djibouti)
Geodynamics		
683	Pre-Atlantic geological connections among Northwest Africa, Iberia and eastern North America	Morocco
Geohazards		
691	Risk assessment of Bridges	Algeria
692	Geoheritage for Geohazard Resilience	France

ANNEX 9a: IGGP Governance structure 2018



ANNEX 9b: IGCP Scientific Board Members and Council members 2018

	CHAIRPERSON		Nationality	appointed term
	Ms Vlaswinkel, Brigitte	The Ocean Cleanup	The Netherlands	2017-2020
EARTH RESOURCES	Mr Nasir, Sobhi Team Leader/IGCP Council Member	Sultan Qaboos University	Jordan/Canada	2019-2022
	Mr Beaudoin, Georges	University of Laval (Dep. Geology)	Canada	2017-2020
	Mr Pasava, Jan	Czech Geological Survey	Czech Rep.	2017-2020
	Mr Yigit, Ozcan	Canakkale Onsekiz Mart University (Dep. Geol. Eng)	Turkey	2017-2020
	Ms Baumgartner, Regina	Gold Fields, Lima, Peru	Peru	2017-2020
	Ms Olivo, Gema	Queen's University, Kingston	Canada	2017-2020
	Mr Molnar, Ferenc	Geological Survey of Finland	Finland	2017-2020
	Ms Castro, Liliana	University of Buenos Aires	Argentina	2019-2022
	Mr Canet-Miquel, Carles	UNAM – Centro de Ciencias de la Atmósfera	Mexico	2019-2022
Ms Munkhtsengel, Baatar	Mongolian University of Science and Technology	Mongolia	2019-2022	
GLOBAL CHANGE	Ms Zhou, Weijian Team Leader/IGCP Council Member	Institute of Earth Environment, CAS	China	2019-2022
	Mr Königshof, Peter	Senckenberg Forschungsinstitut und Naturmuseum	Germany	2017-2020
	Ms Leroy, Suzanne	CNRS-INSU	Belgium	2017-2020
	Mr Lukeneder, Alexander	Natural History Museum Vienna	Austria	2017-2020
	Ms Mangano, Maria Gabriela	University of Saskatchewan	Argentina	2017-2020
	Ms Oboh-Ikuenobe, Francisca	Missouri University of Science & Technology	Nigeria	2017-2020
	Ms Yanko Hombach, Valentina	Avalon Inst. of Applied Science	Ukraine	2017-2020
	Ms Vickers-Rich, Patricia	Monash University	Australia	2017-2020
	Mr Servais, Thomas	CNRS – Lille1	France	2017-2020
	Mr Narbonne, Guy	Queen's University, Kingston	Canada	2019-2022
	Ms Orgeira, Maria Julia	IGEBA (University of Buenos Aires and Conicet)	Argentina	2019-2022
	Ms Marsicano, Claudia Alicia	Facultad de Cs. Exactas y Naturales, University of Buenos Aires	Argentina	2019-2022
	Mr Valenzuela Rios, José Ignacio	University of Valencia	Spain	2019-2022

ANNEX 9b continued: IGCP Scientific Board Members and Council members 2018

GEOHAZARDS	Mr Vargas, Carlos Team Leader/IGCP Council Member	Universidad Nacional de Colombia at Bogota	Colombia	2019-2022
	Mr Campbell, Hamish	GNS Science	New Zealand	2017-2020
	Mr Cundy, Andy	University of Brighton	UK	2017-2020
	Mr Sintubin, Manuel	Katholieke Universiteit Leuven	Belgium	2017-2020
	Ms João Batista, Maria	National Laboratory of Energy and Geology (LNEG)	Portugal	2017-2020
	Mr Singh, Vimal	Department of Geology, University of Delhi	India	2017-2020
	Mr Gezahegn, Yirgu	School of Earth Sciences, Addis Ababa University	Ethiopia	2019-2022
	Ms Alcántara Ayala, Irasema	National Autonomous University of Mexico (UNAM)	Mexico	2019-2022
Mr Ghafory-Ashtiany, Mohsen	International Institute of Earthquake Engineering and Seismology (IIEES)	Iran	2019-2022	
HYDROGEOLOGY	Mr Kim, Yongje Team Leader/IGCP Council Member	Korea Institute of Geoscience and Mineral Resources (KIGAM)	Rep. of Korea	2017-2020
	Ms Bernal, Isabel Carolina	National Polytechnic School	Ecuador	2017-2020
	Mr Cheng, Zhang	Inst. of Karst Geology-CAGS/IRCS	China	2017-2020
	Ms Le, Thi Phuong Quynh	Vietnam Acad. of Sc. & Tech	Vietnam	2017-2020
	Mr Tshimanga, Raphael	University of Kinshasa	DR Congo	2017-2020
	Mr Dzhamalov, Roald G.	Water Problems Institute, Russian Academy of Sciences	Russia	2017-2020
	Ms Szócs, Teodóra	The Mining and Geological Survey of Hungary	Hungary	2017-2020
	Mr Ibrahim, Reda Gamil Mohamed	Department of Hydrogeochemistry, Desert Research Center	Egypt	2017-2020
	Ms Vallejos Izquierdo, Angela	University of Almeria	Spain	2017-2020
	Ms Fidelibus, Maria Dolores	Politechnique de Bari	Italy	2017-2020
	Mr Schwartz, Frank	The Ohio State University - School of Earth Sciences	USA	2019-2022
Mr Muzuka, Alfred	The Nelson Mandela African Institute of Science and Technology	Tanzania	2019-2022	
GEODYNAMIC	Ms Mutemeri, Nellia Team Leader/IGCP Council Member	School of Mining, University of Witwatersrand	Zimbabwe	2017-2020
	Mr Charrier, Reynaldo	University of Chile (Dep. of Geology)	Chile	2017-2020
	Mr Ennih, Nasser	University of El Jadida	Morocco	2017-2020
	Ms Halla, Jaana	Helsinki Geological Museum	Finland	2017-2020
	Mr Hisada, Kenichiro	University of Tsukuba (Graduate School of Life & Envir. Sc.)	Japan	2017-2020
	Mr Jin, Xiaochi	Chinese Academy of Geological Sciences	China	2017-2020
	Mr Mocanu, Victor	University of Bucharest	Romania	2017-2020
	Ms Safak, Altunkaynak	Istanbul Technical University	Turkey	2017-2020
	Ms Toy, Virginia	University of Otago	New Zealand	2017-2020

ANNEX 10: Details of 26 IGCP Project Meetings funded by IUGS and UNESCO in 2018

N°	Project Title	Meeting title and location	Meeting date
630	Permian-Triassic Climatic and Environmental Extremes and biotic responses	The IGCP 630 events on Permian Triassic Environment & Climatic Extremes and Biotic Responses took place on the 18 th to 21 st of May in Hefai and Chaohu, Anhui Province, China, the 21-24 May, 2018 in Wuhan China.	18--24 May, 2018.
632	Continental Crisis of the Jurassic	Continental Crisis of the Jurassic- 7th Symposium of IGCP632: Jurassic Crises in Southern-Most Gondwana, Napier, New Zealand from 27 November to 6 December 2018.	27 November – 6 December, 2018.
636-Y	Characterization and Sustainable Exploitation of Geothermal Resources	Characterization and sustainable exploitation of geothermal resources, Paris, Orleans, and Strasbourg, France, 5-12 October 2018.	5-12 October, 2018.
637	Heritage Stone Designation	Heritage Stone Designation Salamanca, Spain, 2-4 October 2018.	2-4 October, 2018.
638	Paleoproterozoic Birimian Geology for Sustainable Development	The Third Colloquium of the International Geoscience Programme, focusing on Geodynamics and mineralisations of Paleoproterozoic formations for sustainable development, took place in Abidjan-Toumodi-Yamoussoukro, Côte d'Ivoire, from the 15 th to 16 th October.	15-20 October, 2018.
639	Sea Level Changes from minutes to millennia	The third annual IGCP 639 meeting took place in two meeting sites, Oman and South Africa, with a large community attending the symposium and field trips which occurred along the coast of southern Italy, near Taranto, Sicily, and Siracusa from the 18 th to 22 nd of September, 2018. The outcome of these meeting	19-22 September, 2018.

		was the publication of a detailed guidebook which can be used by interested participants to observe the sites in Italy.	
640	Significance of Modern and Ancient Submarine Slope and Landslides	The 8 th International Symposium on Subaqueous Mass Movements and Their Consequences took place on 7 th -9 th May, 2018 in Victoria, Canada. The conference covered topics such as subaqueous landslides affecting lakes, coastal areas and the deep-sea, and their future directions and actions to address the related environmental challenges.	7-9 May, 2018.
641	Deformation and fissuring caused by exploitation of subsurface fluids	The 4 th Annual Meeting, November 1 to 4, 2018 took place at the Nanjing University, Nanjing, China within the 5 th Symposium on Land Subsidence Prevention and Control in China.	1-4 November, 2018.
643	Water Resources in Wet Tropics of West-Central Africa	Water Resources in Wet Tropics of West-Central Africa, Ivory Coast (Abidjan). 22 to 27 October 2018 at the Nangui Abrogoua University.	22-27 October, 2018.
646	Dynamic interaction in tropical Africa	Dynamic interaction in tropical Africa, 08-12 October 2018: Cameroon.	8-12 October, 2018.
648	Supercontinent Cycles an Global Geodynamics	Project Meetings on the Supercontinent Cycles a Global Geodynamics took place on: <ul style="list-style-type: none"> - The 16th to 21st of June, 2018 Resources for Future Generations (RFG2018) in Vancouver, BC, Canada. - The 14th to 18th of October, 2018 in Adelaide, Australia, Geoscience Council Convention. 	16-21 June, 2018 14-18 October, 2018. 1-9 November, 2018.

		- The 1 st – 9 th Nov. 2018, IGCP 648 2018 Field Symposium on the Cambrian to Palaeoproterozoic of South China took place in Yichang Three Gorges Region, China. The event included 2 days of seminars and a 6 day field workshop.	
649	Diamonds and Recycled Mantle	The 4th IGCP-649 Diamonds and Recycled Mantle Workshop and Field Trip took place from 5 – 14 July, 2018 in Australia and New Caledonia, investigating the ophiolite, chromitite, and related plate tectonic and mantle dynamic processes of both Eastern Australia and New Caledonia.	5-14 July, 2018.
652	Reading Geologic Time in Paleozoic Sedimentary Rocks	The Annual IGCP 652 Meeting took place on the 12 th -19 th of September, 2018 in Bremen, Germany, and included a three-day pre-meeting workshop and a three-day post-meeting fieldtrip focusing on the Denovian of Germany and cyclostratigraphy.	12-19 September, 2018.
653	The onset of the Great Ordovician Biodiversification Event	The IGCP 653 Project Workshop took place the 12-16 of February, 2018 in Marrakech, Morocco.	12-16 February, 2018.
655	Toarcian Oceanic Anoxic Event	Toarcian Oceanic Anoxic Event, Portugal (Coimbra). 6 th – 9 th September 2018.	6-9 September, 2018.
659 New	Seismic Risk Assessment in Africa	The EARS International Conference of the IGCP 659 took place in Dar Es Salaam, Tanzania on the 8 th to 10 th of October, 2018.	6-8 October, 2018.
661	The Critical Zone in Karst Systems	The 2018 meeting for the IGCP project 661 took place on the 19 th of June, 2018 in Vancouver, Canada.	19 June, 2018.
662 New	Orogenic architecture and crustal growth from	Orogenic architecture and crustal growth from accretion to collision. 5-day pre-workshop field discussion and training course in Luyuan, Gansu, China and 2-day workshop in Beijing China 16-22 September 2018.	15-23 September, 2018.

	accretion to collision		
663 New	Land subsidence in coastal cities	Land Subsidence in Coastal cities. Shangai, China. 30 October to 2 November in Shangai.	30 October-2 November, 2018.
665	Sustainable use of black soil critical zone	The IGCP 665 Second International Symposium on Global Black Soil Critical Zone Geo-Ecological Survey, and the ensuing fieldtrip, occurred in the Harbin, China, from the 8 th to 12 th of December, 2018.	8-12 December, 2018.
667 New	World Map of the Orogens	World Map of the Orogens, Paris, 3-5 December 2018.	3-5 December, 2018.
668	Equatorial Gondwana history and early Palaeozoic Evolutionary Dynamics	Equatorial Gondwana history and Early Palaeozoic Evolutionary Dynamics, Bangkok, Thailand, 29-30 Nov. Asia Hotel, Bangkok, Thailand. 1-5 Dec: Tarutao Island, Thailand.	28 November- 6 December, 2018.
672 New	Himalayan glaciers and risks to local communities	The project meetings took place in: <ul style="list-style-type: none"> - Thimphu, Bhutan from June 3d to 8th, 2018, and involved seven project members and students from 3 countries: Nepal, Bhutan and India. - Himalayan glaciers and risks to local communities. Kathmandu (Nepal), 7-17 November 2018. 	3-8 June, 2018. 7-17 November, 2018.