

**Ninth Session of the UN Committee of Experts on
Global Geospatial Information Management
7-9 August 2019, New York**
**Report: UN-GGIM Geospatial Societies (formerly the Joint Board of Geospatial Information
Societies). <http://www.fig.net/jbgis/>**

Summary

This document provides a report from the UN-GGIM Geospatial Societies Thematic Group (formerly the Joint Board of Geospatial Information Societies - JBGIS) to the Ninth Session of the UN Committee of Experts on Global Geospatial Information Management, 7-9 August 2019, New York.

UN-GGIM Geospatial Societies (UN-GGIM GS)

The UN GGIM Geospatial Societies Thematic Group is a coalition of the Presidents, Secretaries-General or equivalent office bearers or their nominees that lead recognized international organisations involved in the coordination, development, management, standardisation or regulation of geospatial information and related matters. These organisations are:

- IEEE Geoscience and Remote Sensing Society (GRSS)
- International Association of Geodesy (IAG)
- International Cartographic Association (ICA)
- International Federation of Surveyors (FIG)
- International Geographical Union (IGU)
- International Map Industry Association (IMIA)
- International Society of Photogrammetry and Remote Sensing (ISPRS)

UN GGIM GS meets formally once each year, typically when the UN-GGIM Committee of Experts meet, and informally when schedules permit. This report provides an update on the activities of the organisations listed above where they have been provided.

IEEE Geoscience and Remote Sensing Society (GRSS)

Activities and Areas of Work

The Institute of Electrical and Electronics Engineers (IEEE), Geoscience and Remote Sensing Society (GRSS), is one of the world's leading professional societies in remote sensing and geospatial information. One of its objectives is to support decision making for the sustainable development of earth resources and humanitarian well being. GRSS Society membership has grown significantly during the past two years, both geographically and in membership with a large increase in the number of members in Asia, South America and Europe. At the end of 2018 GRSS membership numbered more than 4000. In addition, the number of local and regional GRSS Chapters increased from 62 in 2016 to 76 at the end of 2018. Chapters play a very important role in bringing together scientists and researchers in the geo-spatial sciences to address and share information on local research priorities and to tap into the financial and technical resources and support offered by the GRSS Society. Details of GRSS chapters and their locations can be found at <http://www.grss-ieee.org/community/chapters/> The Society hallmark conference, *the International Geoscience and Remote Sensing Symposium* (IGARSS) was held in Valencia, Spain, from 23-27 July 2018. The theme was “*Observing, Understanding and Forecasting the Dynamics of Our Planet*”. More than 2700 abstracts were received and over 2350 people participated in the Symposium. IGARSS 2018 received the IEEE 2018 iCon Conference Award in recognition for its demonstrated excellence in supporting the mission and values of IEEE for innovation, content curation and community building.

Partnerships and Regional and International Collaboration

GRSS continues to work closely with the African Association of Remote Sensing of the Environment (AARSE); supports the work of the Asian Remote Sensing Association and has a part-time staff member working in Beijing, China. It is developing closer links with India and Latin American remote sensing organisations and universities for the co-sponsoring of conferences, the holding of workshops and training courses and for providing mutual access to journals and publications. GRSS is a Participating Organisation in GEO and a Member of the GEO Programme Board (2018-20) and a Member of the United Nations Committee of Experts on Global Geospatial Information Management, Geospatial Societies (UN-GGIM).

Priority Issues and Challenges

In addition to IGARSS as our annual flagship conference, GRSS is working at a number of levels to engage more communities geographically in the technical and scientific use of remotely sensed imagery for humanitarian objectives. One activity is the organization of regional conferences. In 2020 GRSS will hold three regional conferences held in locations far from the more central locations of the IGARSS flagship conferences. The objectives are to help communities that cannot come to IGARSS because of distance, cost or other barriers to organize dedicated events. The first event, the *Mediterranean and Middle-East Geoscience and Remote Sensing Symposium (M2GARSS)*, <https://2020.m2garss.org/default.asp> will be devoted to practitioners and scholars in the Middle East and North Africa (MENA) region, and will be held in Tunis, Tunisia, on March 9-11, 2020. Two weeks later another regional conference will be held in Latin America in Santiago, Chile, from 22-27 March 2020. This event called the *Latin American GRSS and ISPRS Remote Sensing conference (LAGIRS)*, <https://2020.lagirs.org/es/default.asp> will be jointly organized with ISPRS. The third regional conference will be in Ahmedabad, India, from Dec. 2-5, 2020, and titled the *India Geoscience and Remote Sensing Symposium (InGARSS)*. GRSS volunteers in the Meetings & Symposia and the Global Activities portfolios of the Society are working hard to support the organization of these regional symposia.

In order to build more connections both internally within GRSS as well as externally, an ad-hoc *Inter-Society Committee* has been formed to foster greater cooperation and GRSS engagement with the many other societies and organizations involved in the study of earth observation and sustainable development of our planet.

Perspectives and Future Plans

While GRSS has a diverse global membership, less than 15% of members are female. A major initiative is being undertaken to address this imbalance and for the Society to become more inclusive overall. At the forthcoming IGARSS19 Conference in July 2019, in Yokohama, Japan, a *Women in GRSS Forum* will be held to provide professional women the opportunity to facilitate knowledge sharing, create communities and provide ongoing support through a session called GRSS IDEA (“Inspire, Develop, Empower, and Advance”).

A more inclusive GRSS can also be realized through the promotion of a more effective communication program in addition to journal publications by making the GRSS web site (www-grss-ieee.org) and social media accounts (@GRSS and @WinGRSS on Twitter, and the GRSS groups on Facebook and LinkedIn), the main hubs for information, news, podcasts and for announcing new trends in sensor and systems development for satellite, airborne and ground-based geospatial observations and the derived analytical results.

International Association of Geodesy (IAG)

Activities and Areas of Work

The scientific structure of IAG, a constituent Association of the International Union of Geodesy and

Geophysics (IUGG), comprises 4 Commissions (Reference Frames, Gravity Field, Earth Rotation and Geodynamics, Positioning and Applications), the Inter-Commission Committee on Theory (ICCT), 13 International Scientific Services, the Global Geodetic Observing System (GGOS), and the Communication and Outreach Branch (COB). The ICCT investigates scientific geodetic problems in close cooperation with the Commissions. The Services generate scientific products by means of Operation, Data and Analysis Centers. The main role of the GGOS is the coordination of the different IAG components, in particular the maintenance of global reference frames for measuring and consistently interpreting global change processes, and to promote its use to the scientific community, policy makers and the public. The COB provides communication, public information and outreach links, in particular via the IAG Website (<http://www.iag-aig.org>) and the monthly Newsletters. The IAG General Assembly, the Council of national delegates, the Executive Committee (EC), and the Office carry out the administration of IAG.

The IAG Commissions, the ICCT, the GGOS, the COB, and the Services maintain their own Webpages (all accessible via the IAG Website). They organized 18 symposia and workshops during the reporting period (<https://iag.dgfi.tum.de/en/meetings-calendar/>). Important topics of the EC were the future IAG strategy, the establishment of inter-association components with other IUGG Associations, new inter-commission committees, a product center for the time-variable gravity field (COST-G), and a satellite altimetry service (IAS). The General Assembly 2019 (<http://iugg2019montreal.com/>) was prepared including the election of IAG Officers for the period 2019-2023 by the Council and a Review of the Statutes and Bylaws. The EC meeting summaries are available at <https://iag.dgfi.tum.de/en/meeting-summaries/>.

Partnerships and Regional and International Collaboration

The IAG liaisons are described at <https://iag.dgfi.tum.de/en/iag-liaisons/>. These are Advisory Board on the Law of the Sea (ABLÓS)

Group on Earth Observation (GEO)

International Science Council (ISC) Commission on Space Research (COSPAR)

International Astronomic Union (IAU) Commission A2 "Rotation of the Earth"

International Standards Organization (ISO) TC 211

United Nations Initiative on Global Geospatial Information Management (UN-GGIM)

UN-GGIM: Geospatial Societies (previously Joint Board of GIS, JBGIS)

United Nations Office for Outer Space Affairs (UNOOSA)

UNOOSA Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)

UNOOSA International Committee on Global Navigation Satellite Systems (ICG)

Representatives of IAG participated in the meetings of these bodies and reported to the IAG EC. The reports of all IAG components (Commissions, Inter-commission Committee on Theory, Global Geodetic Observing System (GGOS), IAG Office and Communication and Outreach Branch were published in the IAG reports (Travaux, <https://iag.dgfi.tum.de/en/iag-publications-position-papers/iag-reports-2019-online/>).

Priority Issues and Challenges

A continuing priority is the IAG involvement in the Global Geodetic Reference Frame (GGRF) of the United Nations' Global Geospatial Information Management (UN-GGIM). Priority issues in this respect are the consistency of geometric, gravimetric and height reference frames, and the adoption of identical standards and conventions for all data processing. There are several IAG Study and Working Groups dedicated to this problem, coordinated by IAG's Commissions and the Global Geodetic Observing System (GGOS).

The common research with other IUGG Associations is another priority issue, e.g. in joint (sub-) commissions. Actual activities are going on in seismology (International Association of Seismology and Physics of the Earth's Interior, IASPEI) and volcanology (International Association of Volcanology and Chemistry of the Earth's Interior, IAVCEI). Research in marine geodesy, climate

change, and new sensors and technologies (e.g. optical and atomic clocks, quantum sensors) shall be intensified, e.g. in new inter-commission committees.

Perspectives and Future Plans

The dramatic technical and scientific change of geodesy is continuing in the next decade. Space techniques are improving in quantity and quality. New sensors (e.g. optical and atomic clocks, quantum sensors) allow measurements of new parameters, and powerful computers extend the horizon of processing huge amounts of data. The objective of geodesy expanded to the observation and quantification of more and more effects of global change (climate and dynamics of the solid, fluid and gaseous Earth). The IAG strategy discussion led to the adaption of actualized IAG Statutes and Bylaws to include these challenges into a modified structure of the IAG research components (in particular the Inter-Commission Committees) in the period 2019-2023. The IAG scientific services have to conform to all the requirements by adopting, developing and applying modern technologies. The Global Geodetic Observing System (GGOS) shall coordinate the contributions from geometry, gravimetry and chronometry in general relativity approaches.

International Cartographic Association (ICA)

Activities, Areas of Work

The International Cartographic Association (ICA), founded in 1959, has as its aim to promote the discipline of Cartography internationally. It offers its expertise and knowledge of technological developments to other organizations via events, meetings workshops, and publications. Its activities happen through the work of its Commissions and Working Groups, that deal with a wide range of topics that cover nearly the whole discipline.

Our new publication policy has become active, resulting in three official open publication outlets, which are hosted by a commercial publisher, Copernicus GmbH. The titles are

- Advances in Cartography and GIScience of the International Cartographic Association
- Proceedings of the International Cartographic Association
- Abstracts of the International Cartographic Association

They are accessible via <https://www.proc-int-cartogr-assoc.net/>

In the weeks before the ninth UN-GGIM meeting, ICA will have had its 29th International Cartographic Conference and 18th General Assembly in Tokyo. During the General Assembly a new Executive Committee will have been elected, as well as new Commissions and Working Groups.

Partnerships and Regional and International Collaboration

ICA works together with the other geospatial societies with the UN-GGIM. In the ISC (International Science Council) we work together with the Geo-unions. Via our Commissions and Working Groups we are active in ISO/TC 211 and OSGeo.

Priority Issues and Challenges

ICA is currently focused on the book project ‘**Mapping for a Sustainable World**’, the follow-up of the SDG poster project. The book is a co-publication between ICA and the United Nations Geospatial Information Section. It will be published in both hardcopy and as epub during the summer of 2019. From the book’s preface:

“Maps help us to better understand the relationship between humans and their environment, and to monitor SDG indicators and communicate their uneven global footprints. These visualizations support decision-making by local and national authorities as well as promote public awareness of global issues to encourage these authorities to act. However, many of the maps and diagrams about the SDG indicators are produced without awareness of established cartographic design guidelines. Flawed and misleading designs often result. Problems also regularly originate from inappropriate data-handling, distracting base maps, inappropriate map elements, and the (mis)use of software defaults. Cartography

describes the art, science and technology of making and using maps. Drawing from cartography, this book offers guidelines for mapping geographic datasets related to the SDGs by introducing basic principles of map design and use, discussing established best practices and success stories, and explaining how different mapping techniques support understanding of the SDGs”

Perspectives and Future Plans

Our new working group Cartographic Body of Knowledge (CartoBoK) has organized a session at the recent AAG conference to kick off its activities and work with existing Bodies of Knowledge (BoKs) with visualization components. The next period this will get some priority to link Education and Research. Research is necessary to make sure our discipline remains relevant. Education disseminates this new knowledge and trains future generations.

International Federation of Surveyors (FIG)

Activities and Areas of Work

2018-19 was a transition time for FIG. The FIG Council 2015—18 and its officers finalized the term by the end of 2018 which means that the second half of 2018 was used to finalise many of the activities that had been undertaken. 1.1.2019 a new Council with a new President, Rudolf Staiger, took over. President Staiger presented his Work Plan during the General Assembly at the FIG Working Week 2019 in which he has included the focus areas for FIG for the coming term 2019-2022.

The FIG Working Week was held in Hanoi, Vietnam 22-26 April with the overall theme: “Geospatial information for a smarter life and environmental resilience”. 950 participants attended from in total 86 countries, and special institutional partners to the Working Week were FAO, World Bank, UN-GGIM, and UN-Habitat/GLTN. There were several special sessions, some of which were organized in cooperation with institutional partners and sister organisations, , hereunder a session in which the Fit-for-Purpose concept for Land Administration was discussed. In total 80 sessions with around 400 presentations were organized plus the three plenary sessions.

Another exceptional event was the hand-over ceremony (to the new Council) combined with the 140-year-celebration of FIG. Both events, embedded into TUFE 2018 and organized by President Chrissy Potsiou herself, took place in November 2018 in Athens. It was the first Interdisciplinary Conference on “Economy, Society and Climate Change – The impact of mega trends in the Built Environment, Construction Industry and Real Estate”.

FIG has established regional networks for Africa and Asia/Pacific and both networks have held meetings in their regions to encourage the regional cooperation. The FIG Young Surveyors Network is active in all regions around the world.

There are three new FIG publications:

No 72 - [FIG publication on Best Practices 3D Cadastres](#) - 3D Cadastre Joint Working Group Commission 3 and Commission 7

No 73 - [FIG Publication on New Trends in Geospatial Information](#): The Land Surveyors Role in the Era of Crowdsourcing and VGI Current State and Practices within the Land Surveying, Mapping and Geo-Science Communities. FIG Commission 3

No 74 - [Cost Effective Precise Positioning with GNSS](#), FIG Commission 5

Partnerships and Regional and International Collaboration

The Global Surveyors’ Day on 21 March was introduced in 2018 with an inaugurate celebration during the World Bank meeting in Washington 2018. This year, the Global Surveyors Day was celebrated in various places around the world, hereunder in Malaysia ([report](#)) and Nepal.

Through our international collaboration with FIG members, the sister professional associations, regional professional bodies as well as UN bodies and the World Bank, FIG aims to transform all surveyors into global surveyors. Surveyors who will have a global education for the progress of surveying in all its fields and applications everywhere; but also surveyors who will have an understanding of global challenges and will be able to develop the profession for the betterment of all parts of our world.

FIG works closely together with several UN organizations, hereunder GLTN and FAO. FIG held a STDM training session during FIG Working Week 2019 and has finalized a UN-Habitat/GLTN-FIG Young Surveyors pilot project on Volunteer Community Surveyor Programme (VCSP) which is an innovative volunteer program that is a powerful driver for both social impact and professional development. FAO had three special sessions in the Working Week programme on technological contributions to improve tenure governance, FIG Academic forum on FAO-VGGT, strengthening democratic spaces to balance societal priorities in spatial planning, and a Master Class Learning Session on the Use of Technology; and World Bank had sessions jointly organized with FIG, FAO and UN-GGIM on Integrated Geospatial Information Framework.

FIG Honorary President Teo CheeHai had a central convening and leadership role from the first initiative until the final report on Framework for Costing and Financing Land Administration Services – CoFLAS in cooperation with GLTN. It is a practical implementation guide that accompanies the overarching Framework for Costing and Financing Land Administration Services (CoFLAS) tool document. The costing and financing of land administration services directly addresses one of the 18 core land tools identified by GLTN: “modernizing the land agencies’ budgetary approach”.

Several FIG representatives attended the inaugurate UNWGIC Conference in Deqing, China with several presentations. FIG Young Surveyors and FIG Foundation had sponsored four young surveyors from Tonga, Cameroon, China and Nepal, to attend and to present in a special Young Geospatial Experts session.

Priority Issues and Challenges

One vision is to see an even greater diversity of participation in FIG commissions as well as in the top level of FIG administration. Participation in FIG brings satisfaction by knowing that through our evidence-based geospatial data, land tools and services we manage to enable the geospatial transformation of our society and to contribute to the ambitious Global Sustainable Development Agenda 2030 and to the dream of a happy city and a sustainable management of natural resources.

Perspectives and Future Plans

At the General Assembly FIG President Rudolf Staiger presented the 4-year Council Work Plan (2019-2022). The motto for the new term is “Volunteering for the Future” aiming both internally to be certain that there are representatives working on the FIG agenda around the world, and externally that the volunteers work for the future of FIG. Another aim is to develop a long-term-strategy for FIG, called FIG 2028.

Over the last 30 years, FIG became a globally acting organisation representing the full range of a modern surveying profession. To keep the position as the premier international representation of surveyors, FIG cannot ignore the dramatic changes in technology and society that have occurred in the last decades in order to stay relevant for our profession and society.

FIG will continue to work in the commissions, with sister organizations and with FIG members on the UN Sustainable Development Goals. Surveyors and their products play an essential role in the majority of the 17 SDGs. To respond to this, FIG Council has established a Task Force to work on SDG’s, hereunder to identify the professional fields in which surveyors can contribute the most to fulfilling the SDG’s, to propose ways in which the surveying community can contribute, and to coordinate the SDG activities.

Maintaining the significance of the surveying profession remains an important target for FIG. Council will continue to keep and strengthen our partnership with UN agencies, the World Bank, other international agencies, and sister organizations.

Matters/Issues for Consideration

We propose that an issue for further consideration during the NY meeting might be "How to increase fruitful cooperation and how to join efforts within the UNGGIM Geospatial Societies to further improve the cooperation among the Geospatial Societies and to support UN-GGIM.

International Geographical Union (IGU)

Activities and Areas of Work

IGU promotes Geospatial Technology and Sciences through IGU Commissions and Task Forces. The geospatial community emphasizes on the inclusion of global partners from industry, government, academia, development sector and other stakeholders at large. The geospatial science is constantly capturing the global size, growth and value impact along with key insights on application of technological drivers and business models used in Geography. Four crucial major technology segments like GNSS and Positioning Technologies, GIS/Spatial Analytics Technologies, Earth Observation Technologies and 3D Scanning Technologies are key areas of concern for IGU. The estimates of geospatial data are from multiple sources and impact studies catering to specific segments and aspects of the geospatial societies at national, regional and global levels. With regards to the 'mapping SDGs' against Commission activities, IGU started mapped with Goals and Targets. Given the importance of data in Geography, especially – but not exclusively - big data, it is clear that IGU needs to cooperate more with CODATA, which is extremely active within International Science Council. The possibility of establishing a Task Force in relation to data was again considered; IGU EC requests existing IGU Commissions, emphasizing the importance of their involvement. An integrated view of geospatial technology is a need of the hour which can be used with simplicity. Multivariate data analysis and techniques have been used to draw intelligence and inferences in a meaningful way. The analysis from various reports brings to light historical growth rate of the geospatial industry at 11.5 % (year 2013-2017), with a projected growth rate of 13.6 % up to 2020 (year 2018-2020). Worldwide, the GIS science is witnessing an unprecedented growth in all geographies with high double-digit growth in the Asia Pacific, Middle East, Africa and South African regions. However, the geospatial industry growth as well as its readiness to meet current and future leadership remains with North America, Europe and Few Asian Countries like China, India and Japan.

North American Universities will keep on maintaining its dominance riding on proactive initiatives to enhance commercialization within the industry segments. At the same time, the growth in Asia Pacific economies is something to watch out for in comparison to European markets (in relative percentages). While the North American region has demographics and demand drivers favoring long-term higher growth rate to surpass European Universities comfortably in the 2020-2025 scenario, the latter will remain a significant market and solutions provider at a global scale. The geospatial trends and drivers have been captured from multiple focus group discussions and electronic reports across industry segments, users, and system integrators, solution providers in Geospatial, IT and data domains.

Partnerships and Regional and International Collaboration

IGU develops partnership through commission and publications. Several Proposed Volumes under New Springer Series on Sustainable Development Goals. Information of these are available through links:

<http://www.springer.com/series/15486>

<http://www.springer.com/gp/book/9783319580388>

<http://www.springer.com/gp/book/9783319564685>

Important Springer publication is in the press entitled: Spatial Information Technology for Sustainable Development Goals by Dilip Kumar, R.B.Singh and Ranjit Kaur. The Book Offers an important policy analysis tool for mapping SDGs synergies. This book aims to develop a scientific knowledge base on spatial information technology to communicate the United Nations' Sustainable Development Goals (SDGs) among students, researchers, professionals and laymen. The book improves understanding of the spatial database and explains how to extract information from this for planning purposes. To enhance the knowledge of geoscientists and environmentalists, the book describes the basic fundamental concepts to advance techniques for spatial data management and analysis and discusses the methodology. Where the first part of the book discusses the conceptual background, the second part deals with case studies using these applications in different disciplines. The presented case studies include land use, agriculture, flood, watershed characterization and infrastructure assessment for the Sustainable Development Goals.

Another Series: Advances in Geographical and Environmental Sciences for IGU Related Publications: This Springer series is continuing with 9 books that have been published. See link below:

<http://www.springer.com/series/13113>. Earlier IGU commission published book entitled: Geospatial Technologies and Geography Education in a Changing World:

<https://www.springerprofessional.de/en/geospatial-technologies-and-geography-education-in-a-changing-wo/4627854>

IGU is also developing collaboration with scientists through IGU Conferences. The International Symposium on Spatial Data Handling is a biennial international research forum initiated and organized by its Commission. The 18th International Symposium on Spatial Data Handling (SDH 2018) was held in Russian State Library on June 7-9, 2018, right after the IGU Thematic Conference. It was hosted by Institute of Geography of the Russian Academy of Sciences and Russian State Library. Olga Solomina, the director of Institute of Geography of RAS, addressed on the opening ceremony. Professor Andrej Medvedeff from our commission chaired the symposium. The theme of the symposium is "Technological challenges and informational challenges" and the topics include: spatial analysis, modeling and data mining; big data and sensor networks; geospatial data quality and data integration; spatial data infrastructures and interoperability; open source and open data; thematic cartography and multivariate data mapping; remotely-sensed data for mapping. Researchers from different countries reported their research work. The website of the symposium is <http://sdh2018.ru/>. The 10th International Workshop on Pattern Recognition in Remote Sensing (PRRA 2018) was held in Beijing on August 19-20. It is organized by the Technical Committee 7 (TC Remote Sensing and Mapping) of the International Association for Pattern Recognition (IAPR). The IGU commission on Geographical Information Science co-organized the workshop. The website of the workshop is <http://www.prrs2018.org/>.

Perspectives and Future Plans

The existence of diverse geospatial industry and professional networks in North America reflect the industry development across value chain/sector segments. Geographer jobs grow 35 per cent per annum, while those of cartographers and photogrammetrists grow 22 percent between 2010 and 2020 according to a study. The European bloc countries like Switzerland, Spain, Sweden Germany and UK have Space technology centers set up under the European Space Agency (ESA) framework. They also have their own national geospatial knowledge industry business incubation programs and active private startup ecosystem stakeholders' participation. Asian countries like South Korea, Japan, and Singapore have started taking initiatives to their innovation/incubation programs. The geospatial industry in China and India is still continuing to expand due to an exponential rise in the number of technical and scientific research centers and trained people. However, both countries currently lack dedicated funding of space and geospatial industry segments. The geospatial sector of developing countries suffer from lack of integrated approach despite of long history of topographic survey/mapping, globally acknowledged accomplishments in space and ICT technology domains. Collaborations need to be encouraged between developing and developed countries for realizing its potential to add to the national growth and development objectives.

Matters/Issues for Consideration

Given the importance of the SDGs and the potential role of geospatial technology, societies should map SDGs working towards associated targets incorporating roles of big data into software and technology with more practical daily uses. Smart city has “digital technology embedded across all city functions.” Geospatial mapping is essential in creating sensory-enhanced urban areas integrating autonomous vehicle transportation, 3D technologies and asset management. Many diseases are being researched today using geographic techniques. The location of water, climate, drug users, environmental hazards, or the cultural patterns of people can all provide clues and knowledge to determine where the greatest healthcare need could exist in the future.

International Map Industry Association (IMIA)

Activities and Areas of Work

The International Map Industry Association (IMIA) is a global organization that represents the business of maps. IMIA is where mapmakers, publishers, geospatial technology companies, distributors, location-based services and content producers come together to conduct the business of maps. IMIA has a number of activities planned in our regions and continues to publish relevant content via our blog, member newsletter and social media.

IMIA Americas held its second annual DC Meetup in Washington DC, followed by a meeting of the Americas Board and invited members. This meetup is the second venue for this new model of creating regional single-day events to bring together leaders in the mapping community. IMIA Americas also hosted its fourth annual Denver Meetup event on 13 June 2019 at the University of Colorado. The Association will also host a meeting of members at the Esri User Conference in July 2019 (including its continued participation in the sponsoring of the ICA/IMIA Map Award) as well and continuing its hosting of an IMIA collective stand and networking events at the Frankfurt Bookfair in October 2019.

We anticipate that the attendance at these conferences will continue to grow year over year and continue to provide a forum for leaders in the mapping industry to meet, network and be an active part of topical discussions and presentations and bring new members to the Association.

IMIA plans to continue its expansion of regional events, with plans being made for events again in Washington, DC, Denver, San Diego and Frankfurt in 2020. Other venues under consideration for events are London England and Ottawa Canada. It has also pledged continuing support for the ICA/IMIA Map Award.

The IMIA will also continue its presence at the Frankfurt Bookfair with a collective stand for member companies and a networking event. In 2018, the IMIA collaborated with I T Solutions to create a survey of the size and scope of the worldwide offset map printing market. The results of this survey were reported in the Fall of 2018.

Priority Issues and Challenges

The IMIA Boards of Directors has moved forward with plans to consolidate operations of the Association into a single, expanded International Board of Directors and eliminate the separate worldwide regional structures. This new structure will better position the Association to provide value to its members and position it for growth in the burgeoning geospatial economy. The Association has appointed Dave McIlhagga as President and has also appointed Mark Cygan as Board member, filling a vacant seat.

Perspectives and Future Plans

As the only Association solely focuses on the business of maps, we continue to see a bright future for the Association to support the growing ecosystem of businesses in the mapping industry. We have

created a new model for connecting leaders throughout the industry that we will implement around the globe.

International Society of Photogrammetry and Remote Sensing (ISPRS)

Activities and Areas of Work

ISPRS continued to run its existing programs and develop new programs that benefit its members and the society as a whole. In 2018, ISPRS initiated for the first time the Educational and Capacity Building Initiatives (ECBI) and seven projects were funded and completed. All project reports are available at <https://www.isprs.org/society/ecbi/default.aspx>. In 2019, six projects were selected for support under ISPRS ongoing Scientific Initiatives (SI) program. A brief summary of these projects are available here <https://www.isprs.org/society/si/default.aspx>. From 2018 to 2019, a few new programs have been developed:

ISPRS Keynote Speaker Program: intends to provide keynote speakers for events organized by ISPRS Ordinary Members;

Support for authors of developing countries: helps with APC for accepted open access papers;

Support for organisers of ISPRS events: provides Conference management system free of charge; and

Offer to ISPRS Ordinary Members the possibility to publish papers presented at their scientific events in the ISPRS Archives, in response to various requests.

2018 was the ISPRS year of Technical Commission's midterm symposia, when all five commissions held their symposium in different countries including Germany (Karlsruhe), Italy (Riva del Garda), China (Beijing), Netherlands (Delft) and India (Dehradun), attracted in average about 400 participants each. The ISPRS Geospatial Week was successfully held in June 2019 in Enschede, Netherlands.

On the scientific publication side, ISPRS wishes to draw attention of the following:

Two special issues that have been in preparation for ISPRS Congress in Nice in 2020: IJGI Special Issue "[State-of-the-Art in Spatial Information Science](#)" and ISPRS Journal of Photogrammetry and Remote Sensing Special Issue "[Data Analytics: Meeting the challenges of Big Geo Data](#)"

New Book "Planetary Remote Sensing and Mapping" in ISPRS Book Series

ISPRS Annals now listed in the Ei Compendex

Partnerships and Regional and International Collaboration

To ensure its global cooperation, ISPRS continued its collaboration with sister societies including ICA, IAG, FIG, IHO, IEEE-GRSS, UN GGIM Geospatial Societies, ICSU, GEO, UN-GGIM, UN-OOSA, etc., and its regional representatives in areas with less contact to ISPRS. In 2018-2019, the ISPRS Student Consortium has organized a number of summer schools, for example:

IEEE/GRSS-Young Professionals & ISPRS Student Consortium Summer School in Brazil

ISPRS SC and Universiti Teknologi Malaysia Summer School 2018: Big GeoSensing Data Ecosystem: Theory, Processing & Application

ISPRS WG IV/1, WG V/5, Student Consortium Summer School (to be held in August 2019)

One of the recent focuses is on reinforcing the connection between ISPRS and South America. The effort includes council members' visit to the members and participation in the events held in the region, as well as joint organization of ISPRS / IEEE-GRSS summer schools, tutorials, and conferences. A special issue on "Coping with Environmental Challenges in Latin America with Remote Sensing" was edited for the ISPRS Journal of Photogrammetry and Remote Sensing.

A number of ISPRS council members and working group officers attend the 1st United Nations World Geospatial Information Congress was held in Deqing, China from 19 - 21 November 2018. A special session on "Global Land Cover and Intelligent Analysis of Remotely Sensed Images"

was organised, which was very well attended and increased awareness about the importance of global high-resolution land-cover maps.

In 2018, IEEE GRSS and ISPRS signed a MoU to enhance Cooperation of the two Societies in remote sensing.

Priority Issues and Challenges

ISPRS priorities for 2016 to 2020 include: 1) Improve scientific excellence on international level; 2) Enhance public recognition of photogrammetry, remote sensing and spatial information science for benefit of humankind and sustainability of environment; 3) Increase relevance to members, expand membership; 4) Increase cooperation with sister societies; and 5) Increase role in education and capacity building in collaboration with international partners.

Perspectives and Future Plans

In the **Prague Declaration**, made the XXIII ISPRS Congress in Prague, ISPRS and the participants of the Congress “recognize the ever increasing application of imagery in many aspects of life and work today, and the urgent demands on deriving scientific evidence from imagery to monitor and understand global change, support *sustainable development* and confront global problems”. ISPRS will continue to be committed in realizing the full potential of information from imagery and its delivery to users through research and development, scientific networking, international co-operation, inter-disciplinary integration and education and training. As part of its future plans, ISPRS will explore new programs such as research program on Geospatial Information-enabled SDGs Monitoring for the 2030 Agenda by mobilizing and integrating all resources that ISPRS and its members have.

In 2020, ISPRS will hold its XXXIV Congress in Nice, France, from June 14 to 20. The Congress is expected to host over 3000 participants with leading specialists and technologists, engineers, researchers and students in the field of photogrammetry, remote sensing, and spatial information sciences coming from universities, research foundations, space agencies, mapping and cadaster agencies, public organisations and private companies, and end-users around the world. Further information can be found at <http://www.isprs2020-nice.com/>.

Matters/Issues for Consideration

UN-GGIM Geospatial Societies needs to develop its strategies and implementation plans for further promotion of geospatial information to address key global challenges, especially the challenges facing the 2030 Agenda.