



Karst Commission (C12-23)
International Geographical Union

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B. Number of commission corresponding members (total and by countries) as of 1
 December 2015:

China	22	Spain	8	Czech	3
France	19	Canada	7	New Zealand	3
Germany	18	Hungary	7	The Philippines	3
Iran	18	Poland	7	The Netherland	2
Slovenia	17	Croatia	6	Romania	2
United Kingdom	15	Israel	5	Switzerland	2
Australia	14	Slovak	5	Turkey	2
Belgium	12	Portugal	4	Vietnam	2
Russia	11	Japan	4	Austria	2
USA	11	Ukraine	4	Indonesia	2
Brazil	9	Bulgaria	3	India	1
Italy	8	Cuba	3	Korea	1
Total				36 countries	263

B. Meetings

a, b

International Karstological Schools (IKS) “Classic karst” in Postojna (Slovenia) were the representative annual meetings of Karst Commission during 2012-2016.

N of IKS	Year	Dates of IKS in June	Subject	Numbers	
				Participants	Countries
20	2012	18-23	Karst forms and processes	136	31
21	2013	10-14	Hypogene speleogenesis: between theory and reality	125	28
22	2014	16-22	Karst and microorganisms	94	20
23	2015	15-20	Caves – Explorations and Studies	252	37
24	2016	?	Palaeokarst		

Every IKS is characterized by a special, the most actual for the recent karstology, subject. The leading karstologists from different countries are invited to deliver the key-note lectures at the beginning of International Schools. The IKSs include the scientific sessions (with oral and poster presentations), field excursions, as well as the social events (demonstrations of videofilms about interesting karst regions, reports about complicated speleological expeditions, etc.). Usually, not less 40 % of IKSs participants are the young karstologists (among which the women are widely represented), a considerable part of the ones are from the developing countries.

The results of IKSs are reflected In the International issues “Acta Karsologica”, where the most important presentations are published as the papers. The subjects of next IKSs are at the focus of attention during the Commission’s meetings.

2012: The basic idea of Commission’s meeting during the jubilee 20th IKS was to sum up and to discuss the new findings in the course of the last 19th Schools: the 20th IKS was an opportunity to review our current understanding of typical karst forms and processes, to stress the research advances in the last two decades and to define the challenges and perspectives from the next generations: by example, the influence of hypogene processes to speleogenesis, the stipulating role of weathering processes in the development of karstification, etc.



During the field excursion to Planinsko polje

2013: The aim of meeting was to present the basic hydro-geological, geological and chemical principles and the processes of hypogene speleogenesis. Special attention was centered to the geometry of cave passages and wall rock features which are often interpreted as hypogene, but could have as well formed otherwise, such as in meteoric floodwater conditions or by dissolution in contact with sediments. Hypogene speleogenesis is a new direction of recent karstology.

2014: This meeting was served as a forum to exchange by ideas and experiences among the professionals who deal with the microorganisms on a daily base. Significant emphasis was given to the need for the holistic understanding of karst, including geological, geomorphologic, hydro-geological and ecological processes that are affected to microbiota. The information, received by microbiologists, gradually use as supplement for the comprehensive understanding of underground processes.

2015: The Commission's meeting was combined with the 50th Anniversary of the International Union of Speleology – UIS. The main successes in the explorations and scientific study of caverns were at the centre of attention. It was marked that the caves play an important role during a long human history: they were used by ancient people as the dwelling and the shelter starting the Palaeolithic. But the first systematic explorations and realistic descriptions of underground cavities were started only in the XVIIIth century. As the science, occupying by cave researches, the speleology was based in the XIXth century. In course of scientific sessions the different directions of recent cave explorations were considered: microclimate, geological and hydro-geological conditions, morphology and biological aspects. As for today, cave Mamontova (USA) is the longest one in the world with the length of more than 560 km, the vertical karst system of cave Krubera (Abkhazia) is the deepest: its pits are stretched to more than 2 km.

32nd International Geographical Congress, 26-30 August 2012, Cologne, Germany, 18 participants from 10 countries.

During the Congress in Cologne the work of two scientific sessions – “Human impacts and environmental changes in karst” and “Management and conservation of karst landscapes” and the field excursion to the Iserlohn karst area (the German cave Museum and the Dechenhöhle cave, as well as the locality, the so-called Felsenmeer at Hemer, which is a classical point for karren in the non –alpine Central Europe) were organized. The multiple indicators of karst environmental degradation on the territory of Europe and Asia were represented both on the surface of karst massifs, and inside of the ones. It was marked that the urbanization puts a significant pressure on the karst, especially through the acidifying effect of the infiltrating contaminated water. As the result, the importance of landscape long-term ecological research in karst regions in the XXIst century was emphasized.

The List of a new Steering Committee and the state of Commission's web-site were at the focus of attention in course of Commission's business meeting.

Regional Conference IGU “Traditional Wisdom and Modern Knowledge for the Earth's Future”, 4-9 August 2013, Kyoto, Japan, 10 participants from 4 countries

Considerable attention during Commission's meeting was to a new project “Saving Caves – Towards an International Protection System for Karst Environments”. The structure of the monograph was proposed as following: I – Introduction, including the brief statement of the need and an overview of relevant treaties (World Heritage and RAMSAR) and the model of new international agreement for caves and karst areas; II – The Scientific and cultural background: Location, nature and extent of karst environments at a global scale (authors: A. Hada and E. Trofimova); Karst and carbon cycle (authors: J. Cao, B. Hu, Ch. Groves, F. Huang, H. Yang, Ch. Zhang), Karst and mineral deposits (P. Forti and B. Onac), Karst environment (D.C. Culver), Palaeontological research in karst areas (B. Sala), Archaeological research in karst areas (N. Uomini), Art in caves (R. Bednarik); III – Human impact, resources utilization and tourism: Modern resource use and its impact in karst areas – water resources (M. Trappe), Modern resource use and its impact in karst areas – agriculture, forestry and grazing (E. Tanács), Modern resource use and its impact in karst areas – mining and quarrying (M. Parise), Tourism (A. Cigna); IV – Management and protection of karst areas: Vulnerability and auto/restoration capacities of karst geosystems (I. Bárány-Kevei), Systemic

organization of karst landscapes (V. Andreychouk), Some general rules for planning in karst areas (T. Slabe, M. Knez, J. Kogovšek, F. Mihevc, J. Mulec, M. Perne, M. Petrič, T. Pipan, M. Prelovšek, S. Šebela, N. Navbar); V - Some considerations of the legal status of caves and karst areas and the legislative frame work governing karst environment and heritage: Legal status of caves and karst areas (G. Middleton) and Necessary qualities in legislation to protect karst areas (G. Middleton).

After the conference, 10-12th of August, the excursion to Akiyoshi Plateau was organized with the visit of two caves (Shuhodo and Kagekiyodo), Quarry Company and the village in the Uvales. The accent was done to the presentation of human activities on the Plateau.

Regional Conference IGU “Changes, Challenges Responsibility”, 18-22 August 2014, Krakow, Poland, 16 participants from 8 countries

The work of scientific sessions devoted to “Environmental Change and Stewardship Responsibilities in Karst Regions” was organized in the frame work the International Geographical Union Regional Conference. During the sessions the main attention was centered on the stewardship responsibilities in water exploitation (the influence of contaminated water on karst environment was emphasized), deforestation, urbanization and tourism, which are resulting in potentially irreversible changes in karst landscapes. Interesting new directions in the explorations were discussed: for the first time the relations between aboveground net primary productivity (ANPP), rain-use efficiency and human activity’s intensity were revealed for the karst settings in China, and universal approach to the assessment of cave environmental changes – so-called Cave Disturbance Index, relating to relief, water objects, air, vegetation and fauna (as the main geographical components of cave environment) plus cultural aspects of recent cave use. Generally, the spread of Chinese karstological school participation to the Regional Conferences IGU was noted.

The participants of conference visited the salt mine “Velichka”.

Regional Conference IGU “Geography, Culture and Society for Our Future Earth”, 21-25 August 2015, Moscow, Russia, 12 participants from 5 countries.

Theoretical aspects and practical approaches to sustainable development in karst landscapes, which are highly sensitive to different types of human activity, were at the centre of attention. It was underlined that the vulnerability of karst terrain arises from, first and foremost, the rapid transit time of percolating groundwater, the limited filtration capacity of karst bedrocks and the considerably specialized subterranean biota. The sessions were focused on the interactions among physical aspects of karst, such as geomorphologic and hydro-geological processes, human endeavors and environmental issues in karst. This is a particular importance: big discussion flared up around effects proposed of mixed corrosion for the formation of waterfalls in karst of Northern China and contradictory opinions were expressed in relation to approach to the local geomagnetic variation’s use for the indication of karst caverns and taliks.

c.

European Geosciences Union General Assembly, session NH8.6: Sinkholes; from susceptibility to risk evaluation and mapping, 22-27 April, 2012, Vienna (Austria), 10 participants.

Session “Sinkholes; from susceptibility to risk evaluation and mapping” aims were to stimulate the discussion on the state-of-the-art of the studies on the sinkholes, with special regard to sinkholes in plain non-karstic areas. Data about the genetic mechanisms and risk evaluation and mapping of sinkholes have both the long-term theoretical and practical importance.

V International Workshop on Ice Cave (IWIC-V), 16-23 September, 2012, Barzio (LC), Valsassina, Grigna and Milano (Italy), 31 participants.

Workshop on Cave Ice devoted completely to cave ice explorations. The materials concerning the cave ice degradation's observations were given much space. These data have a long-time theoretical and practical implication for the modeling of environmental development in 21 century.

16th "Karst development (Karsztfejlődés)" conference, 6-9 June, 2013, Bük (Hungary), 36 participants.

Karst development conference was organized as the meeting of the young and the experienced investigators. During the conference the young karstologists had the possibility to represent their results of explorations and to receive the recommendations for the future work from the chief karstologists. The conference included two field trips, to Rax Mountain and to Bakony Mts.



After heavy route to Rax Mountain

The materials concerning the cave ice degradation's observations were given much space. These data have a long-time theoretical and practical implication for the modeling of environmental development in 21 century.

16th International Congress of Speleology "Where history meets future", 21-28 July, 2013, Brno (Czech Republic), 52 participants.

The Speleological Congress showed the considerable growth of anthropogenic pressure in the caves and the increase of cave environmental changes. It was marked that the creation of touristic caves is one of the methods of cave conservation and protection.

VI International Workshop on Cave Ice (IWIC-VI), 17-22 August, 2014, Idaho Falls, Idaho, USA, 32 participants from 11 countries.

The International Workshop is a series of workshops devoted entirely to ice cave research, it is the only conference focused on state-of-the-art in ice cave research, where international experts discuss ongoing research efforts and promote global cooperation in ice cave science and management. The topics of the presentations included modeling, measuring, and monitoring of ice and glacier cave processes, microclimates, and cave ice, as well as the effects of climate change.

XII International Congress of the International Association of Engineering Geology “Engineering Geology for Society and Territory”, session 5.7: “Engineering problems in Karst”, 15-19 September 2014, Torino, Italy, 35 participants from 16 countries.

The session dealt with problems related to design and realize the engineering projects in karst, and with natural and anthropogenic hazards occurring in this very fragile environment. The importance of a specific approach in karst terrains to limit the negative effects of human activities on its valuable natural and often protected resources, and to allow sustainable development, has been remarked in many contributions.

V International conference “Speleology and speleology”, 29 November 2014, Naberezhny Chelny, Russia, 72 participants from 9 countries.

This conference indicated the recent problems of complex studies of natural and artificial caves. Hypogen karst as a new direction in karstology was at the focus of special attention. The increase of interest to the exploration of artificial caverns was marked.

European Geosciences Union General Assembly, 12-17 April 2015, Vienna, Austria, a session “Understanding the Speleothem archive” concentrated 26 abstracts.

The scientific session highlights the latest developments in the understanding of the sedimentology, petrography, isotopic and elemental composition, fluid inclusion composition, and growth dynamics of speleothems. It explores their relation with environmental and climatic proxies. Their integrated study leads to a better interpretation of time-series and provides chronologically well-constrained information on past climates and environments, rainwater composition, human occupation and specific events. Monitoring of the cave environment and study of the vadose zone above the speleothem site, as well as simple models of deposition processes or of surface-cave-speleothem transfer processes, are often crucial to robust interpretation of speleothem data. The session welcomes all studies from monitoring, modelling, and analysis of speleothems that advance our capacity to make paleoenvironmental reconstructions from speleothems. It also welcomes newest records or information retrieved from speleothems. The presentations were held and concerned new high resolution records for the Holocene and LIG periods.

International Conference on Groundwater in Karst, 20-26 June 2015, Birmingham, UK, more than 30 participants.

The meeting was organized around four main themes: Lithological, structural and stratigraphical influences on karst groundwaters, Modelling karst groundwaters systems, The ecology of karst groundwaters and Human-karst groundwater interactions. Special attention was spared to the practical approaches in explorations of karst regions: 1. to determining mass balance of systems, including modelling Rayleigh distillation for elemental composition and isotopes were covered and 2. to the techniques available to analyze fluorescent organic matter in karst groundwaters, including fluorescence spectroscopy, UV-VIS spectroscopy, and UV microscopy.

Pre- and post-conference field trips will visit three contrasting karst groundwater systems: the Cretaceous chalk, Jurassic limestones and Carboniferous limestones.

C. Networking

a.

During 2012-2016 the Commission’s corresponding members and the members of Commission’s Steering Committee had numerous individual contacts with the members of other Commissions IGU, especially during the IGU scientific actions.

Karst Commission's corresponding members and the members of Commission's Steering Committee realized the joint presentations with the members of Steering Committees and corresponding members of other IGU Commissions: for example, presentation "Tourism impact on the Naxi Dongba linguistic landscape", authors – Carolin Funch (Commission C12-15) and Jie Zhang (Commission C12-23), presentation "Carbon sequestration potential of floodplain forests in the Maros River Valley (Hungary), authors – Marton Kiss, Victoria Cseh (Commission C12-25) and Eszter Tanács (Commission C12-23), for the conference IGU in Krakow, etc.

IGU Commission of Cold Region Environments (C12.06) came out as the expert of nomination "Lena Pillars Nature Park: minor modifications to the boundaries of World Heritage property". Nomination was inscribed at the List of World Natural Heritage (by the criteria VIII: "significant on-going processes", mainly, by the unique and outstanding value of cold karst) during the 39th UNESCO session in Bonn (26 June-10 July 2015).

b.

■ Karst Commission has the old and fruitful relations with the International Union of Speleology (IUS). Moreover, President IUS, prof. Kyung Sik Woo, member of Commission's Steering Committee. Traditional scientific actions: the 20-23 International Karstological Schools, III-V International conferences "Speleology and speleostology", V-VI International Workshops on Cave Ice, numerous scientific expeditions to the karst regions of different parts of the world (Vietnam, Turkey, Australia, etc.) were organized in the collaboration with IUS (with Commissions "Artificial Cavities" /chair Dr Mario Parise/, "Glacier, Firm and Ice Cave" /chair prof. Valter Maggi/, "Karst Hydrogeology and Speleogenesis" /chair Dr A. Klimchouk/).

■ The International Geological Correlation programme (IGCP) No 598: "Environmental Change and Sustainability in Karst Systems" is under the auspices of UNESCO with the participation of the International Union of Geological Sciences. The co-leaders of programme, prof. Martin Knez (corresponding member) and prof. Chris Groves (starting from 2015 is the member of the Steering Committee).

■ Karst Commission is collaborating actively with the International Federation of Rock Art Organizations (IFRAO) /chair Mr R. Bednarik). During 2015 the monograph "Saving karst environments and caves" was prepared in collaboration with this international organization.

■ Karst Commission is collaborating with the IUCN (International Union of Conservation of Nature)/UNESCO World Commission on Protected Areas (WCPA). The collaboration is effecting over the examination of the technical assessments of the World Natural Heritage, by example, at the renomination "Phong Nha – Ke Bang National Park" (Vietnam), at the minor modification of the boundaries of World Heritage properties "Lena Pillars Nature Park" (Russia), etc.

■ During 2012-2016 the corresponding members of Karst Commission participated at the meetings and the work of such professional societies, as the European Geosciences Union, Polish Geographical Society, Associations of American Geographers, Russian Geographical Society, Minnesota Ground Water Association, Association of Geographical Societies of Slovenia, etc. The main international collaborative efforts of KC:

- International Union of Speleology
- International Association of Engineering Geology
- International Association of Geomorphologists
- International Geological Correlation Program

- International Union for Conservation of Nature
- International Federation of Rock Art Organizations
- WWF.

D. Publications

a.

1. 20th International Karstological School “Karst forms and processes”, General information, programme, field trips, abstracts. Postojna (Slovenia), Karst Research Institute, 2012, 80 p.
2. Lena Pillars Nature Park. Potential World Heritage Property. Moscow: ANNIE, 2012, 56 p.
3. Proceedings of III International Conference “Speleology and Speleology”, 26-27 November, 2012, Naberezhny Chelny, Naberezhny Chelny State Pedagogic University, 2012, 281 p.
4. 21st International Karstological School “Karst forms and processes”, General information, programme, field trips, abstracts. Postojna (Slovenia), Karst Research Institute, 2012, 98 p.
5. Newsletter N 8, dated by 15 April 2012.
6. Newsletter N 9, dated by 12 June 2012.
7. Newsletter N 10, dated by 7 August 2012.
8. Newsletter N11, dated by 20 December 2012.
9. Annotated Bibliography of Karst Publications No 17-18, 2013:
<http://sites.google.com/site/igukarstcommission/>.
10. Newsletter N12, dated by 14 May 2013.
11. Newsletter N13, dated by 18 July 2013.
12. Newsletter N 14, dated by 20 December 2013.
13. Proceedings of IV International Conference “Speleology and Speleology”, 26-27 November, Naberezhny Chelny, Naberezhny Chelny State Pedagogic University, 2014, 319 p.
14. 22nd International Karstological School “Karst and microorganisms”. General information, program, field trips, abstracts. Postojna (Slovenia), Karst Research Institute, 2014, 69 p.
15. Newsletter N15, dated by 3 April 2014.
16. Newsletter N16, dated by 25 August 2014.
17. Newsletter N17, dated by 25 September 2014.
18. Newsletter N18, dated by 6 October 2014.
19. Newsletter N19, dated by 7 December 2014.
20. Proceedings of V International Conference “Speleology and Speleology”, 26-27 November, Naberezhny Chelny, Naberezhny Chelny State Pedagogic University, 2014, 340 p.
21. 23rd International Karstological School “Caves – Explorations and Studies”. General information, program, field trips, abstracts. Postojna (Slovenia), Karst Research Institute, 2015.
22. Newsletter N20, dated by 12 June 2015.
23. Newsletter N21, dated by 2 September 2015.
24. Newsletter N22, dated by 7 September 2015.
25. Newsletter N23, dated by 21 September 2015.
26. Newsletter N 24, dated by 3 December 2015.
27. Annotated Bibliography of Karst Publications, N 19, 2016.
28. Saving Karst Environments and Caves. – Zeitschrift für Geomorphologie, 2016, N. 60, suppl. X, 351 p.

b. <http://sites.google.com/site/igukarstcommission/>

E. Archival Contributions

Materials and publications are transmitting to the IGU archives.

F. Continuation

- a. **Karst**
- b. Coordination of karst researches in different countries;
Organization of the scientific forums devoted to exchange by the advanced experience of karst explorations;
Publication of leading achievements in karst region's explorations.
- c. Steering Committee:

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d. The work plan 2016-2020:

- *Coming meetings of Commission:*

2016 – Karstology in Arid Regions, 24-31 January, Abu-Dhabi, United Arab Emirates.
<http://abudhabi.zrc-sazu.si/sl-si/home.aspx>

2016 – DeepKarst, 11-14 April, Carlsbad, New Mexico, USA. Dr George Veni is a Local organizer of Commission's activity.
<http://deepkarst.org/>.

2016 – Caves as objects of history and culture, 19-22 April, Divnogorje, Russia. Dr Sofiya Kondratieva is a Local organizer of Commission's activity.
<http://www.divnogor.ru/konf2016>

2016 – the 33rd International Geographical Congress “Shaping Our Harmonious Worlds”, 21-25 August, Beijing, China

Jianhua Cao and Hong Liu are the Local organizers of Commission's work in Bijing. Planning activity of Commission:

Scientific sessions: Karst landscapes: tourism and conservation

Chair

Dr Elena Trofimova

Co-Chair

Prof. Jianhua Cao

ABSTRACT

Karst landscapes provide enormous possibilities for tourism particularly that focused on appreciation and exploration of the natural landscape. Unusual surface landforms, such as dry valleys, sinkholes, springs, residual hills and pinnacles, are supplemented by unique underground opportunities provided by caves, which hold unique attractions such as underground rivers, “bottomless” lakes, dramatic decorations and distinctive organisms, and which represent singular tourism foci. Worldwide, there are more than 1000 commercially exploited caves, many with extensive lighting and other tourist infrastructure, such as paths, bridges, stairs and viewpoints. “Wild” tourism is also represented by recreational cavers. Tourism, particularly involving large numbers of visitors, causes considerable disturbance in karst environments, both at and below the surface. Provision of tourism infrastructure poses management challenges, and visitor activities may damage the physical fabric and disturb biotic communities. Tourist cave development may enlarge or obstruct cave entrances and passages, may alter hydrological conditions and may change cave atmospheres, potentially threatening biota and damaging artifacts such as cave paintings. The session will consider present and future approaches to the management and reconciliation of tourism and conservation in karst landscapes, with particular attention to karst areas which are protected at local through international levels.

Field karst excursion: Karst visit from Guilin to Shilin, South China

Jianhua Cao and Hong Liu are the responsible organizers of excursion.

ABSTRACT

Guilin is the typical karst city with the two dominant karst landforms, from Devonian pure limestone, well-developed Fenglin (peak forest plain or tower karst) and the fengcong (peak cluster or cone karst). There is a Lijiang rivers across the city, and a gorgeous boat voyage from Guilin to Yangshuo is proposed with the visit of Crown Cave. Guilin is the inscribed at the List of World Natural Heritage. The Maocun karst experimental site visit is offered with the goal to show the karst carbon cycle in a catchment.



Lijiang river and fengcong karst landform

Shilin is well-known as stone forest “pinnacle karst”, a particular karst landform composed of a group densely limestone or dolomite columns standing on Yunnan plateau. The height of the columns is from several meters to decade ones. The limestone and dolomite strata are dated by early Perm, and the formation of columns is considered close related to subsoil dissolution and erosion. Stone forest is both World Natural Heritage site and global geopark. The visit of show Jiuxiang Cave is expected.

- **Co-organization of International Karstological School “Classic Karst” in Postojna:**

24 th	IKS June 2016
25 th	IKS June 2017
26 th	IKS June 2018
27 th	IKS June 2019
28 th	IKS June 2020

Every Karstological School is dedicated to the most present-day problems of recent karstology.

EuroKarst 2016, 5-7 September, Neuchâtel, Switzerland.

<http://www.eurokarst.org/>

2017 – International Congress of Speleology in Artificial Cavities – Hypogea, 6-8 March, Cappadocia, Turkey.

www.hypogea2017.com

2017 – 17th International Congress of Speleology, 23-30 July, Sydney, New South Wales, Australia.

<http://speleo2017.com/>

2018 – the Regional Conference in Quebec, Canada, 6-10 August

2020 – the 34th International Geographical Congress in Stambul, Turkey, August

2022 – the Extraordinary International Geographical Congress “Time for geographers”, Paris, France, August

- Research work will be concentrated upon the following scientific directions:

Problems of environmental changes and responsibility in different types of the karst (from tropic to polar): comprehensive assessment of human activity influence (agriculture, water exploitation, deforestation, urbanization, etc.) and elaboration of recommendations for the sustainable development of karst regions;

Tourism on karst: karst and karst phenomena as touristic attractions, tourism and local development, tourist development and/against protection, karst at the List of World Natural Heritage.

TOPICS OF THE COMMISSION’S ACTIVITIES

- *Saving karst environments and caves*

More than 30 specialists (from 11 countries) are integrated in the project, having the aim to create a new international protection system of karst environments and caves. All of the colleagues are cavers with a long-term experience of cave explorations. The agreement of a new international protection system is “in press” in the supplement issue 60/10 “Zeitschrift für Geomorphologie” (2016), fully devoted to the project.

Steering Committee: Prof. Paolo Forti, Prof. David D. Culver, Dr Elena V. Trofimova, Dr Tadej Slabe, Prof. Martin Knez, etc.

- *Karst dynamic system and Carbon Cycle*

The considerable increase of carbonate rock’s solubility, caused by the hydration of CO₂, is a fundamental problem of recent karstogenesis. The effect of carbon dioxide from atmosphere and

soil air is treated. The global balance of carbon in karst systems is analyzed.

Coordinators: Prof. Jianhua Cao and Prof. Christian Groves.

- ***Land use planning of karst areas***

Since the karst areas are considered as fragile systems, all activities and utilization of these territories have to be based on recent management, thought out and scientifically found. Nowadays, the methodology for the karst land use planning is still unclear. First, the criteria of such planning are elaborated separately for the protected areas and cultivated ones.

Coordinator: Prof. Eko Haryono.

- ***Karst objects at the List of World Natural and Cultural Heritage***

Two main tasks:

- ensuring the technical evaluation of natural and mixed properties of karst regions, nominated for the inclusion on the World Heritage List;
- preparation of documents (nominations) for the karst regions, proposed to the List of World Heritage.

Coordinators: Dr Elena V. Trofimova and Prof. Kuyng Sik Woo.

- ***Annotated Bibliography of Karst Publications***

Commission is continuing the collection of karst publication abstracts. Now the information about 2014-2015 is systematizing.

Coordinators: Dr Nataša Ravbar and Dr Elena V. Trofimova.

- ***Springer Series on Advances in Geographical and Environmental Sciences for IGU Related Publications: monograph “Geoheritage of karst regions: from UNESCO to RAMSAR”***

The structure of monograph is discussed in Commission’s Newsletters and on Commission’s web-site.

e. – To advance knowledge of the geomorphology and hydrogeology of karst systems, especially in relation to the impacts of human activities;

- To improve understanding of the issues involved in sustainable development of karst terrains;

- To improve understanding of the natural and anthropogenic hazards in karst areas.

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