

PROMOTION ACTIVITIES OF THE PROFESSION TO STUDENTS IN PERIOD 2004-2008 AND FUTURE PROSPECTS

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ABSTRACT:

In the paper, the activities of the ISPRS WG VI/5 in cooperation with the ISPRS Student Consortium (SC) in the period 2004-2008 are presented. The main purpose of the WG VI/5 is stimulation to scientific and research work, and promotion of the ISPRS profession to talented graduate, post-graduate students and young researchers. The working group presents the main link between students from different countries and ISPRS. Relationship and communication between the WG VI/5 and SC, which went through different organizational stages, are described. The most important results are presented: organization of three summer schools, edition of SC Newsletter, formation and maintenance of WG VI/5 and Student Consortium web pages, establishment of SC membership network, and development of the student related programme for the Congress in Beijing (2008). Prospects for the future of the WG VI/5 and the Student Consortium are presented as the conclusion.

1. INTRODUCTION

The main purpose of the ISPRS WG VI/5 is stimulation to scientific and research work, and promotion of the ISPRS profession to talented graduate, post-graduate students and young researchers. It presents the main link between students from different countries and ISPRS. The working group offers support to student coordinators of the Student Consortium (SC), both parts working very closely together. Thus, the structure and work of the WG VI/5 differ in some way from the other ISPRS working groups.

The Working Group VI/5 Promotion of the Profession to Students and hence the Student Consortium was founded during the ISPRS Congress 2004 in Istanbul under the ISPRS Technical Commission VI Education and Outreach. General focus and objectives of the working group have been defined and summarized in the Terms of Reference as follows:

- Promotion and support of international student activities including the ISPRS Student Consortium.
- Encouragement of active participation of students, especially undergraduate students, in ISPRS events and promotion of reduced fees and stipend for their participation.
- Collection and maintenance of a database on persons who are involved in the promotion of the profession to students, including the members of ISPRS Student Consortium and educators.

In the four year period (2004-2008) many tangible results have been achieved. The most important are organization of three summer schools (Istanbul, 2005; Ljubljana, 2007; Nanjing, 2008), edition of SC Newsletter in digital form (first issue in October 2007), formation and maintenance of WG VI/5 and Student Consortium web pages, establishment of SC membership network, and development of student related programme for the Congress in Beijing, 2008.

The leadership of the WG VI/5 has changed in the middle of this period. From its establishment in 2004 till September 2006 the working group was chaired by Rahmi Nurhan Celik (Turkey) and the secretary was Zaide Duran (Turkey). In September 2006 Mojca Kosmatin Fras (University of Ljubljana, Slovenia) was appointed a new WG VI/5 chair-woman and Ms. Anka Lisec (University of Ljubljana, Slovenia) became a secretary. The working group was co-chaired by Zhu Qing (Wuhan University, China) in the entire period from 2004-2008.

The Student Consortium leadership is slightly different as that of the working group, because students are more flexible and short-term oriented as a population. In the first period, the SC was led by a group of enthusiastic student coordinators. However, during the time and as a result of gained experience the SC organization scheme has developed into a more complex structure, which is described in the section 2.2 of this paper in more detail.

1.1 Presentation methods

Understanding organisational structure is crucial in order to provide the base for effective communication between the participators. Therefore, the Unified Modelling Language (UML) is used in this paper for graphical presentation of the proposed organisational structure of the ISPRS WG VI/5 and SC.

UML, which has been adopted as standard by The Object Management Group (OMG), is a general purpose visual modelling language that is used to specify, visualize, construct, browse, configure, maintain, and control information of different real systems or processes. The advantage of the UML models of a system (process) is in stability of the models that are not dependent on the technological environment which changed over time (Eriksson, 2004; Rumbaugh et al., 2005). The UML notation in the form of diagrams can be used to present and to explain the complex real or virtual systems (also organisational

structure) in a simple and comprehensible way, which can provide the base for further discussion and control as well.

2. RELATIONSHIP AND COMMUNICATION BETWEEN ISPRS WG VI/5 AND STUDENT CONSORTIUM

2.1 Basic considerations

A lot of information is available in the World Wide Web and other media on international study programmes, student mobility, research work etc. The problem of today's society is flood of information and it is hard to extract the relevant information, especially for young people with less experience and less critical decision making (Figure 1). The fact is that young people think differently than adults, they are developing their professional directions and are open to different topics. They do not have much experience, and they need introduction and hints about many professional things consequently.

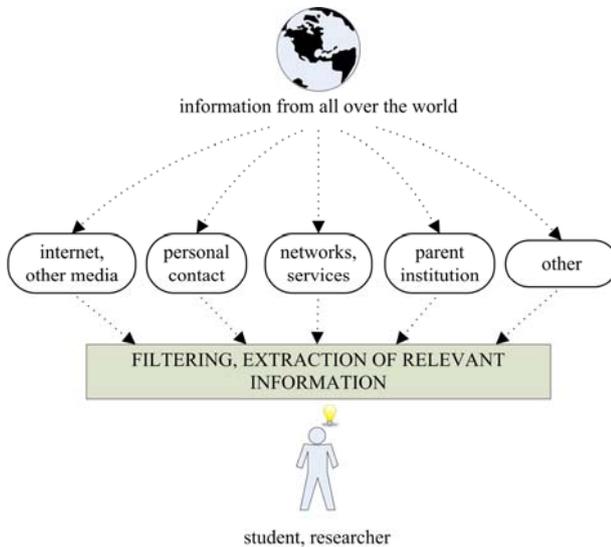


Figure 1. Flood of information in the international area of higher education, research demands filtering of information

The ISPRS Council and the Technical Commission VI aimed at finding better ways of communication with students and youth professionals interested in the activities and domains within the ISPRS. The main framework of communication between students and the ISPRS officers was given with the establishment of the ISPRS WG VI/5: Promotion of the Profession to Students in 2004 on one side (ISPRS officers) and the ISPRS Student Consortium on the other side (students, researchers, young professionals). This was the starting point for development of the organisational structure of the SC and ways of communications with the WG VI/5 officers and other representatives of the ISPRS (Figure 2) (Liseć and Kosmatin Fras, 2008).

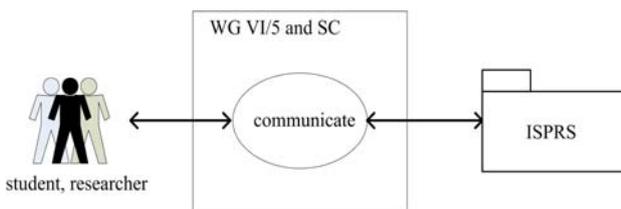


Figure 2. The initial idea on communication system between the ISPRS and students

The realization of information-flow is possible in different ways. One is presented in Figure 3. The strategic aims (terms of reference) represent the top of the decision hierarchy, following by organizational structure and activities planning, and final realization.

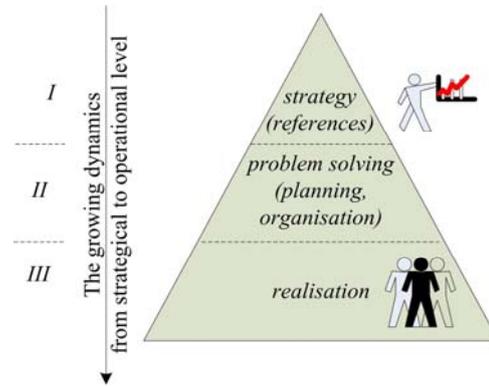


Figure 3. The hierarchy in the process of information-flow

2.2 Specific organisational structure of SC and relations with ISPRS units

As it is well known, the scientific and technical work of the ISPRS is accomplished by 8 Technical Commissions (TC), whose work is organized in several working groups (WG). A working group is led by a chair, a co-chair and optionally a secretary. However, the Student Consortium is led by a group of student coordinators, who work under supervision of the WG VI/5 and TC VI (Figure 4).

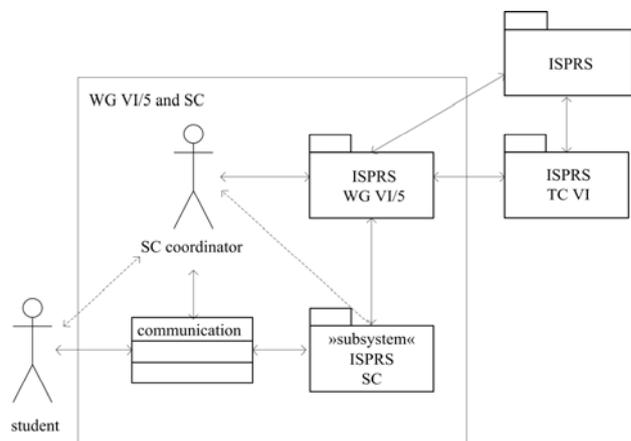


Figure 4. Communication between Student Consortium and ISPRS units

The officers of the Technical Commissions and Working Groups are usually appointed for four years (the period between two Congresses). However, the four year period might be too long for student coordinators. The structure of the Student Consortium has thus to be more flexible. Further on, the experience showed that also SC should have a leading person who coordinates work of student coordinators and the complete consortium. This is a student coordinator-in-chief, who is also the main contact person for communication with the working group officers and the technical commission president (Liseć and Kosmatin Fras, 2008).

The student coordinators are supposed to be responsible for special tasks such as SC Newsletter, SC webpage, coordination of summer schools, other educational and social events. On the other hand, the effective SC activities demand a suitable organizing scheme. For this reason, the regional representatives at least for each continent have been proposed in the framework of

the ISPRS SC. Therefore, regional coordinators should be appointed from different geographical areas (at least for each continent one coordinator), who are trying to establish new contacts (e.g. with different local student organisations), collect, update and mediate information, etc. The Student Consortium organisational scheme has become much more complex (Figure 5).

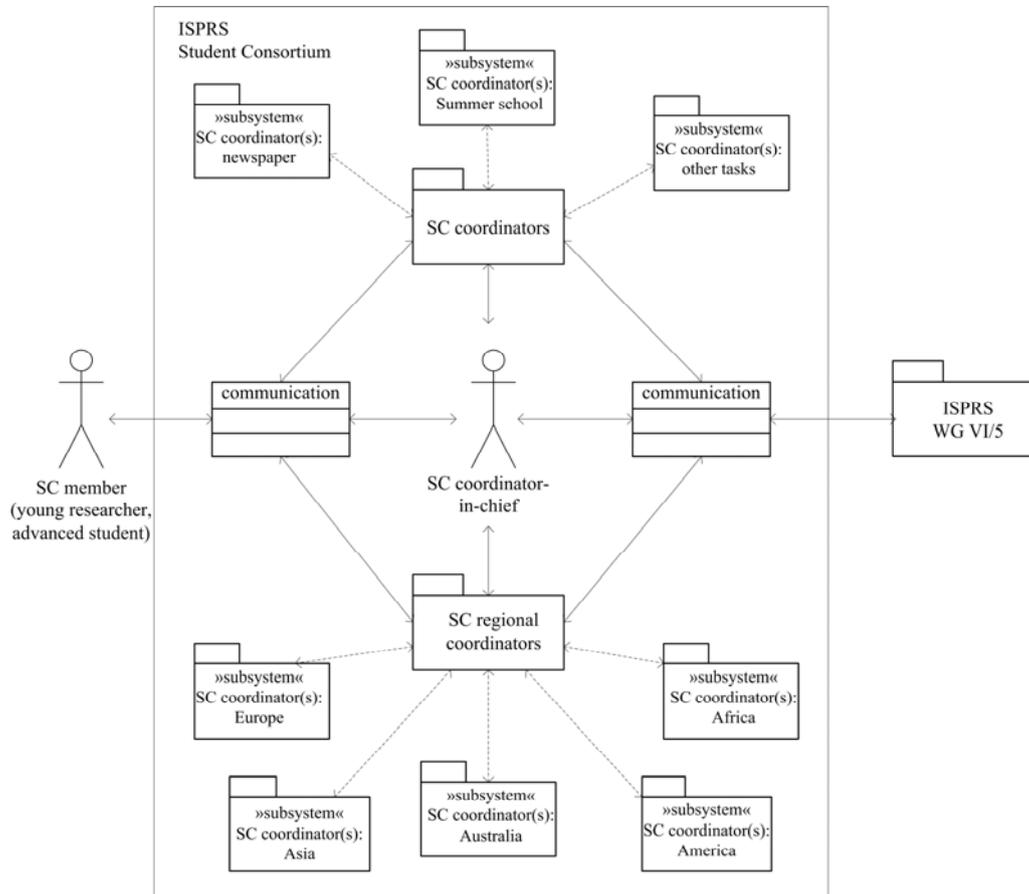


Figure 5. The developed organisational structure of the Student Consortium (partly adopted from Lisec and Kosmatin Fras, 2008)

2.3 SC Newsletter and Networking

One of important issue of the ISPRS Student Consortium and WG VI/5 is the SC Newsletter. The idea about SC digital Newsletter has appeared during the summer school in Istanbul 2005. For the coordination of the work for publishing and distribution of the digital SC Newsletter the editorial (and technical) board was established (student coordinators for the newspaper). The first issue was published in October 2007. Generally, four issues in a year are planned. The SC Newsletter is available at the SC and WG 5 web page and is delivered to the SC members and other subscribed, interested in the topics of the Newsletter.

The main aim of the newspaper is the information flow, which is one of the most important things for the successful activity of an association. The SC Newsletter aims to inform all interested students, researchers about the educational, research and scientific opportunities in the fields of the ISPRS, to encourage students and young researchers for the international work and to develop cultural cohesion in the science and professional work. In addition, the newsletter presents student activities in the framework of the SC to other interested people.

Other activities, such as expansion of the membership network and the renewed SC webpage have significantly contributed to the promotion of the profession to students and young researchers. Further on, the activities of the SC have been presented at IGSM meetings, 2006 in Crakow, Poland, and 2007 in Sofia, Bulgaria, as well as in FIG Congress 2006 in Munich.

3. ISPRS SHORT-TERM EDUCATIONAL PROGRAMMES (SUMMER SCHOOLS)

International Society for Photogrammetry and Remote Sensing (ISPRS), since its creation in 1910, has created a scientific and professional organisation in the field of imaging and image analysis. The successful story of the ISPRS activity would not occurred unless there was a massive practical demand for its services, often linked with geodesy, surveying and cartography (Konecny, 2002). As the consequence, photogrammetry, remote sensing and nowadays a series of GI subjects has become part of geodetic, surveying and cartographic curricula worldwide, especially in the higher education area. In the era of fast developing technology, especially IT, the extent of curricula of clas-

sic geodetic, surveying and cartographic study programmes has been broadened. In addition, there are several new specialized technologies which are coming into the practice. It is hard to handle all these topics in the contemporary study programmes. The complexity of contemporary higher education in the fields related to the geomatics demands that the new, narrow oriented modern technology is introduced to advanced students and young researchers in addition to the regular study programmes. There are several new techniques to improve learning by students and gain greater efficiencies in teaching, such as the provision of online study material and the introduction of multimedia delivery. However, the international student and research mobility will keep the importance in the education although the information flow is quick and remote communication is very fast. The main reason is that the expensive equipment, software, database etc. are not available at all universities. Furthermore, the social component in the international scientific and research areas is of big importance for the harmonized development of the profession as well as society (Lisec and Kosmatin Fras, 2008).

The initial idea on the ISPRS support to advanced student and young researchers, professionals, goes back to the year 2004, when the ISPRS Congress took place in Istanbul, Turkey. During this Congress some student activities were organised. These were Youth Technical Session, The Best Paper and Best Poster by Young Authors Awards, Youth Forum and Summer Camp. All the activities were really productive and encouraging for students. These Youth Forum and Summer Camp were regarded as the first in ISPRS history (Akkoca et al., 2006).

The recognition of the students and young researchers as important population within the ISPRS resulted also in organization of some special events within different professional gatherings. In the Technical Commission VI Symposium in Tokyo (June, 2006), representatives of SC coordinators took part, prepared reports for board meetings and participated with the papers and presentations. On the occasion of the 27th Asian Conference on Remote Sensing (ACRS), held in Ulaanbaatar, Mongolia (October, 2006), pre-conference tutorials and special student sessions have been organized. In the framework of the 32nd International Symposium on RS of Environment, a special program for the students was organised in San José, Costa Rica (June, 2007). The contribution of this event was also promotion of the ISPRS WG VI/5 and SC activities and establishment of the contact with students and researchers from this area.

Further on, organization of summer schools in the framework of the ISPRS WG VI/5 and SC proved to be one of the most important events for the promotion of the science among the young researchers.

The purpose of summer schools is to provide an intensive and educational week with training activities for the students and young researchers in ISPRS work fields. Each summer school has scientific topics of its own, selected from the wide variety of the topics treated within ISPRS. In addition to learning the theory in the lectures, the aim of summer schools is also to demonstrate the participants practical and laboratory works. Not less important, such meetings have a special social meaning in order to exchange ideas and provide base for further international cooperation.

Two summer schools have already been organized (2005 in Istanbul, Turkey and 2007 in Ljubljana, Slovenia) and the third one is planned just before the Congress 2008, in Nanjing, China.

3.1 Summer School in Istanbul, 2005

The 1st ISPRS SC Summer School took place at Istanbul Technical University's Maslak campus, Turkey, June 19-26, 2005.



Figure 6. Graduation from the ISPRS Summer School 2005 in Istanbul, Turkey (ISPRS Student Consortium ..., 2005)

The general topic of the Summer School was "Satellite Data Processing and Spatio-Temporal Analysis (for Resource and Disaster Mapping, Monitoring and Management)". Altogether 39 participants from 11 different countries attended the event (Figure 6). During the discussion on the future of the SC activities and ISPRS summer schools, the participants expressed wish for future short-term educational programmes where theory has to be illustrated in practical applications (exercise) in order to deepen theoretical as well as practical knowledge on specific topics and get better view into material taught in theory during the lectures (Erten et al., 2005).

3.2 Summer School in Ljubljana, 2007

The 2nd Summer School was held in Ljubljana, Slovenia, 1-7 of July 2007 with the topic "Theory and Application of Laser Scanning" (Figure 7).



Figure 7. Terrestrial laser scanning of the Prešeren's Monument, the monument to the greatest Slovenian Poet France Prešeren, The Prešernov square, Ljubljana

The decision for the topic was due to the fact that the technology of laser scanning is inevitably entering the everyday surveying practice. Laser scanning is a successful technology that

has evolved over the last decades across the industrialized world, incorporating a wide array of advances in science and engineering. The basic objective of laser scanning is the indirect determination of spatial measurements of objects using laser scanners.

Both airborne scanning and terrestrial laser scanning (or lidar) are now well established methods for the acquisition of precise and reliable 3D geo-information as well as for the acquisition of several physical objects in the real world, for example monuments for the purpose of preservation and restoration. The needs from the practice are big and enterprises employing young professionals expect that they are well acquainted with latest development when finishing their study. On the other hand, the faculty programmes are not always able to follow the quick development of the profession, due to expensive equipment, data, specialized knowledge and teaching materials. The summer school was thus meant to upgrade and deepen the general knowledge in the technology, which students might receive at their faculties, and to practice the theory on real data.

The Summer School was hosted by the University of Ljubljana, Faculty of Civil and Geodetic Engineering. The organisation of the Summer School was entrusted to the Faculty of Civil and Geodetic Engineering, Slovenian Geodetic Student Association (more than 20 students of geodesy were involved in the organization) and Association of Slovenian Surveyors – Section of Photogrammetry and Remote Sensing. The lecturers came from acknowledged international research and education institutions, having made the summer school a truly professional experience.

The success of the Summer School was also a great number of participants – 52 international participants from 20 countries (China, Malaysia, India, Iran, Egypt, Turkey and many European countries), and around 30 domestic participants (advanced students, PhD students, faculty teaching staff, young researchers). In addition to 32 lecturing hours of the programme, technical visits and different social events were parts of the programme. Perhaps the most important and stimulation facts of the first two ISPRS summer schools were the friendly atmosphere during the whole summer school period and active participation of advanced students, young researchers, researcher from the third world countries and countries in transitions, who worked as a group of old friends, as well as the high quality lectures.

3.3 Summer School in Nanjing, 2008

The 3rd Summer School takes place in Nanjing, China, 27 June – 1 July 2008, just before the start of the ISPRS Congress. The topic is »Acquisition, processing and representation of 3D geospatial information«, organized jointly with the biannual Chinese Doctoral Students' Forum in GIS.

3.4 Summer schools future prospects

In the era of fast developing technology, the regular study programmes could not cover all the topics related to the fields covered by the ISPRS as well as there are not equal opportunities for research due to expensive equipment and missing human resources. The supplementary short-term educational programmes such as summer schools for specific topics seem to play an important role in the future.

Not less important, social contacts and personal acquaintance is enabled through participating summer schools and also many friendly contacts are established. Students and your researchers

are thus establishing new, formal and informal “networks” (Figure 8).



Figure 8. The international networking of students and profession under the ISPRS – participants of the 2nd Summer School in Ljubljana

International student and staff mobility is often connected with several obstacles such as financing, insufficiency of information on student and staff exchange programmes and grants in the international higher education area, lack of information on study programmes abroad, the extension of the study period because of the incongruity of study programmes etc.

It has been shown, that the approach, where the topic of summer school was selected by professionals on the base of students (researchers) needs, has to be kept also for the future short-term scientific educational programmes. The topic, interesting for students and researchers, are related to the fields, often not (or not deeply) covered by contemporary study programmes.

4. CONCLUSION

The only constant in the fields covered by the ISPRS is change. We should not view these from an aspect of fear for the future, but should view them as opportunities for the profession to exploit and to find new challenges, in education and involvement of students and young researchers into different activities of the ISPRS.

Unfortunately, there are several obstacles that prevent student and staff from the international exchange, often associated with financial problems and extension of study period. As it has been shown, the short-term educational programmes (such as summer schools) with theoretical lectures, practical demonstrations and laboratory work can contribute to deeply engagements of young researchers in the specialized topics, which are not included in the regular curricula at their parent educational institution. Therefore, the idea on the topic of such educational programmes has to be discussed and determined by young researchers and supported by professional advice (ISPRS WG VI/5). In the first place, the quality of the lectures is crucial for the success of the short-term educational programmes but not less important is a friendly atmosphere and social contacts.

The financial aspect of organizing a summer school is important as well. In order to enable participation of students and young professionals also from poor countries, the fee should be low as much as possible. The host organizers should thus make some effort to find different local and international sponsors. Based on the good program and detailed financial plan, the ISPRS Council is also giving a part of the financial support. It should be stressed that the host organizers carry the complete financial responsibility for a summer school, however, the experience has shown that with good organization and promotion of the event it is possible to manage it.

Based on the results of the past activities of the ISPRS WG VI/5, the future activities of the ISPRS working group and Student Consortium have further to be focused on collecting and mediating relevant information on financial support, study programmes and mobility opportunities worldwide for students as well as for researchers and teachers. Such information could contribute to the promotion of the profession among the young people, mobility of students in the fields related to the ISPRS, and provide the platform for the international cooperation of the academic institutions consequently. In addition, the young scientists are getting involved into the ISPRS activities and the future international professional network are establishing indirectly.

Intensive promotional work of the WG VI/5 and the Student Consortium through different events and activities, presented above, has resulted also in a very rich student-related programme prepared for the ISPRS Congress, Beijing, 2008. One complete day is dedicated to the Youth Forum (YF), containing four technical sessions (20 oral paper presentations), a poster session (around 70 poster paper presentations), a panel session ("How to get involved in the society and enter upon a successful career for young professionals", with student moderation and invited speakers), a SC Assembly and a granting ceremony for two YF best paper and three YF best poster awards. The next day, a student excursion to the Great Wall will be organized for the YF participants. In addition to all these activities, the WG VI/5 and the Student Consortium will make a promotion at the booth within the Technical Exhibition area.

We strongly believe that the achieved results of the WG VI/5 and the Student Consortium show big progress in communication and involvement of students and young professionals in the ISPRS activities. We see good future prospects in continuing the well established activities as well as searching for new ways of promotion.

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