

International Conferences of Postgraduate Students as Integration of Education, Science and Profession – 10 Years Experiences

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SUMMARY

Doctoral students of Faculty of Civil Engineering, Brno University of Technology (FCE BUT) organize the scientific conferences every year since 1999. 10th conference of postgraduate students JUNIORSTAV 2008 took place in January 2008, with four hundred participants (doctoral students) from Czech Republic and neighbouring European countries. Department of Geodesy and their doctoral students were deputed to organize the Tenth Jubilee year. While in 1999 there were only 26 participants, in 2008 the conference was organized in 8 main sections which covered thematically all the main branches of civil engineering, geodesy and cartography, and authorized appraising, with nearly 400 participants.

The objective of the conference is explicit – it gives opportunity for wide presentation of doctoral professional activities and scientific research results. Due to the fact that the conference is meant for doctoral students only, it affords full play to publish and present parts or conclusions of their researches and confront it with participants from different workplaces. Important part of doctoral success is coaction with colleagues from other schools and also from practice, to obtain view of their problems from other sides.

Important is the possibility of new personal contacts between students of different universities, the exchange of professional experience, and the chance to present results of individual work to interested professional community. The conference contributes to one of the basic goals of postgraduate studies – to improve the quality of education of young scientists and technical professionals in civil engineering and geodesy and cartography fields. Both doctoral students and members of the university academic staff participated in organization of this project. It offers good opportunity for Ph.D. students to get experience with preparing this action in such a way. The professors are also compelled to hear requirements and requests of young generation. For these reasons the JUNIORSTAV is result of many compromises and shows one of many ways how to integrate ideas of different generations.

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1. INTRODUCTION

Educational process in Czech countries has a long tradition, which dates back to the middle ages when the Charles University in Prague was founded in 1348 by Czech and Roman emperor Charles IV as first university in central european region.

Generally considered as beginning of technical education in Czech countries is the year 1707 when Emperor Josef I in response to the request of J.Ch.Willenberg recommended to the Czech General Estates to found an engineering school in Prague and in 1717 the Institut of Engineering Education was established. History of Brno Technical University dates back to 1849, when a technical college known as the German-Czech Utraquistic Institute was established in Brno. Education of czech mining engineers has also a long tradition. Technical University Ostrava is the successor of the first mining school in the world which was founded 1716 in Jáchymov. Surveying education had been included in all the study branches at above mentioned technical schools and universities.

Stand-alone surveying study branch started in 1896 in Prague, and in 1900 in Brno. After the disintegration of the Austro-Hungarian Empire and the constitution of the independent Czechoslovakia (1918) both the Polytechnics in Prague and Brno were transformed into Czech Technical Universities (1920). After the World War II the restored republic became part of the Soviet sphere of power. Private property was expropriated and political and human rights were suppressed. Collapse of communist regime and following social, economic and political changes in eastern Europe in late eighties and beginning of nineties of the last century led to thorough changes to free democratic society and to market oriented economics in most of the countries mentioned.

The transformation of Czech education system begun shortly after "Velvet Revolution" in 1989. One of the most important changes was establishment of the governmental Accrediation Commission, which approves the realization of the single study programmes in the Czech republic (CR).

Ministers of Education from European countries started new process to harmonise the European system of higher education in 1999 in Bologna. Czech Republic joined the Bologna Process which started the most radical reform of european higher education.

It caused tranformation of many university study programmes. The structuralized study system initialization in CR was started by approving the Act which anticipated introduction of bachelor (Bc.) study programmes and follow-up master or master (MSc.) programmes. Top level of higher education cycles are doctoral (Ph.D.) programmes. All the czech universities

have implemented this three-level system of university studies. Higher Education Act Nr. 111/1998 Sb. was complemented by novel Nr. 552/2005 Sb. Ministry of Education, Youth and Sports issued special publications as the White Book – National Programme for Educational Development in Czech Republic. According to the Act every university provides accredited study programmes, and programmes of life-long learning. The trend was emphasized when the Czech Republic together with several other countries joined the E.U. in 2004. Similar transformation is going on in other EU countries (signing the Bologna Declaration). The Bologna Process aims to establish a European Higher Education Area by 2010.

In present time it is possible in CR to study the Geodesy and Cartography branch, or a branch similar, at 4 universities – Czech Technical University in Prague, Brno University of Technology, Technical University in Ostrava and West Bohemian University in Pilsen.

Brno University of Technology (BUT) together with other Czech technical universities offering the higher surveying education has recently modified the curricula. The first surveying bachelors were graduated at BUT in 2007 and next year (2009) some of them will be graduated at the follow-up master programme. Doctoral study programmes has also a long tradition at BUT. The number of students which graduated at BUT in seven past year is in the Table 1.

Table 1: Numbers of BUT graduates in period 2001 – 2007

	2001	2002	2003	2004	2005	2006	2007
BUT	2099	2314	2464	2629	2870	3923	4288
FCE	433	542	470	516	481	581	637
Geodesy and Cartography	46	38	38	40	41	49	Bc 39 MSc 51

2. BUT INTERNATIONAL CONFERENCE OF POSTGRADUATE STUDENTS

2.1 The Meaning and History of the JUNIORSTAV Conference

JUNIORSTAV is the international conference, which takes place on the Faculty of Civil Engineering, Brno University of Technology every year. The conference is intended for all postgraduate students from Czech Republic and from abroad concerned mainly with civil engineering problems. Organization of conference has been entrusted directly to doctoral students, and head organisers in 2008 were chosen the Ph.D. students from Department of Geodesy.

Every year the conference is under the patronage of rector of the university and dean of the faculty. Participants have to hand in an abstract, paper and review of their contribution, and during the day of the conference they can present it before technical commission and other doctoral students. All abstracts, papers and reviews are published in conference proceedings either in printed or in electronic form.

History of International conference for postgraduate students at BUT started at 1999. Title of that time was “Conference of Doctoral Students” and it had only four sections with 26 participants. Because of the fact that geodesy is lectured on all faculties of civil engineering in Czech Republic, the conference was directed at the civil engineering branches (like building constructions, water structures etc.).

During previous years the number of participants increased. In 2001 attended 222 students in seven sections. One of the sections was also section of Geodesy and Cartography with 21 participants. Prevailing themes were: geodetic networks, photogrammetry and numerical analysis. Significance of the conference started to rise also in neighbouring countries. In the same year 43 doctoral students from abroad took part in the JUNIORSTAV conference, mainly from Slovakia, in next years also from Poland, Germany and Austria.

Table 2: Development of number of participants of the JUNIORSTAV conference

Class	1	2	3	4	5	6	7	8	9	10
Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of all participants	26	45	222	259	360	450	400	351	373	398
Number of all contributions	26	45	222	259	336	426	360	351	352	370
Number of sections	4	4	7	7	21	21	21	22	20	20
Number of contributions from other countries than CR	0	8	43	30	51	72	51	50	49	72
Number of contributions from BUT	26	36	130	180	219	196	207	226	195	212
Number of contributios in Geodesy and Cartography	0	0	21	26	28	48	48	37	41	28

The biggest expansion of the conference was in 2004. There were 21 sections launched and number of participants was 450 (72 from another countries than Czech Republic). Branch of geodesy had 48 participants divided into two sections: Theoretical Aspects of Geodesy and Cartography (with themes like GPS measurements or problems of adjustment) and Practical Aspects of Geodesy and Cartography (with prevailing topics about digital terrain modeling or photogrammetry). This structure is valid till now. For detailed data see Table 2. Illustrations of development of number of participants in all branches and in geodesy are in the Figures 1 and 2.

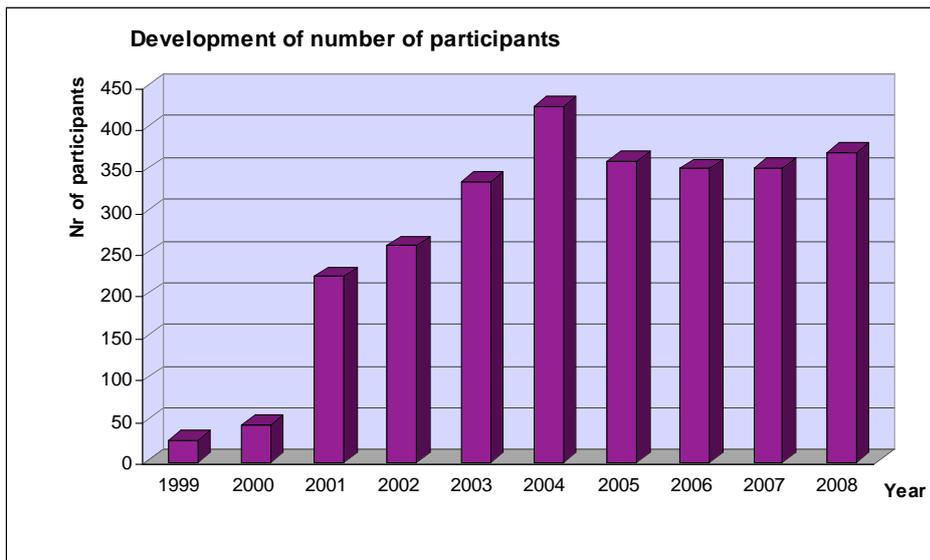


Fig. 1: Development of number of participants of the JUNIORSTAV conference in all sections

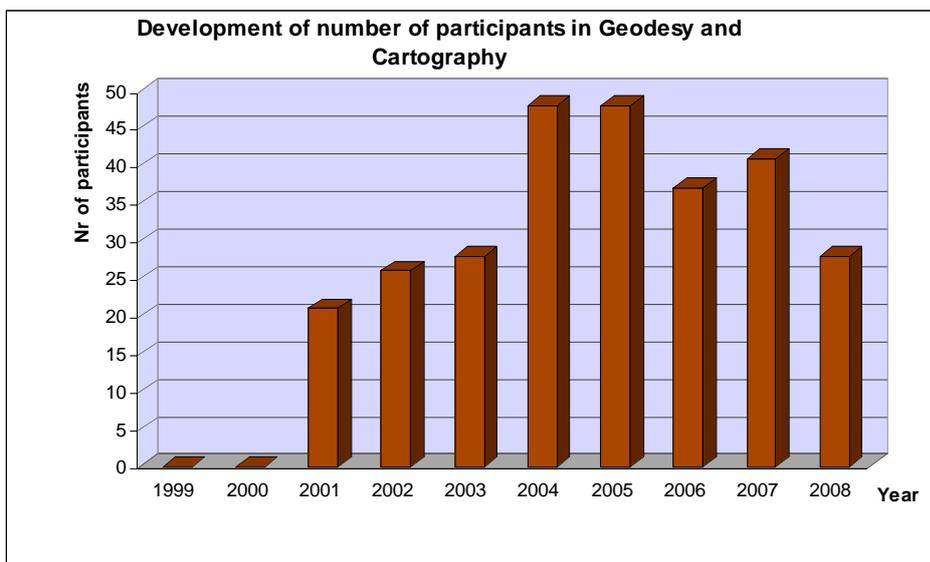


Fig. 2: Development of number of participants of the conference in Geodesy and Cartography

2.2 10th Year of JUNIORSTAV Conference

The jubilee 10th year of the international professional conference of postgraduate students JUNIORSTAV 2008 took place on the 23rd January at the Faculty of Civil Engineering, BUT. Technical guarantor was Prof. Švábenský and head organizers were Ing. Hašová and other doctoral students from Department of Geodesy. Number of participants was 398 and they presented their contributions in 20 sections:

1. CIVIL ENGINEERING

1.1 Architecture and Building Construction

1.2 Construction of Structures

1.3 Building Environment

1.4 Building Services and Energy

1.5 Building Realization

2. CONSTRUCTIONS AND TRAFFIC STRUCTURES

2.1 Concrete and Masonry Structures

2.2. Metal, Timber and Composite Structures

2.3 Roads

2.4 Railway Constructions and Structures

2.5 Building Industry Testing

2.6 Geotechnics

2.7 Structural Mechanics

3. WATER MANAGEMENT AND WATER STRUCTURES

4. PHYSICAL AND BUILDING MATERIALS ENGINEERING

4.1 Physical and Chemical Properties of Building Materials

4.2 New Building Materials

5. ECONOMICS AND MANAGEMENT IN THE BUILDING INDUSTRY

6. GEODESY AND CARTOGRAPHY

6.1 Theoretical Aspects of Geodesy and Cartography

6.2 Practical Aspects of Geodesy and Cartography

7. FORENSIC ENGINEERING

8. SUSTAINABLE BUILDING AND URBAN DEVELOPMENT

Most of the doctoral students were from Czech Republic (Brno University of Technology, Czech Technical University of Prague, VSB-Technical University of Ostrava) but there were attending also 72 students (18% of all) from other European countries (Slovakia, Poland, Germany). For detailed data see Table 3.

Proceedings in geodesy were divided into two sections with 28 participants altogether (8% of all), 5 of them were from domestic faculty. Prevailing theme of Theoretical Aspects of Geodesy and Cartography was GPS measurements, open source or numerical modelling. Presentations in Practical Aspects of Geodesy and Cartography referred to 3D visualizations, mass movements or digital models of terrain. Illustrations of student's structure are in the Figure 3.

Table 3: Structure of participants of the JUNIORSTAV conference in year 2008

Class	10
Year	2008
Number of participants	398
Number of contributions	370
Number of sections	20
Number of contributions from other countries than CR	72
Number of contributions from countries than CR in percents	18,1 %
Number of contributions from Slovakia	62
Number of contributions from Poland	9
Number of contributions from Germany	1
Number of contributions from BUT	212
Number of contributions from BUT in percents	53,3 %
Number of contributios in Geodesy and Cartography	28
Number of contributios in Geodesy and Cartography in percents	7,6 %
Number of contributios in Geodesy and Cartography from BUT	5

Programme of the JUNIORSTAV conference has three standard parts every year: An opening ceremony with welcome speeches, then the presentations of the students in relevant technical section and closing ceremony where the dean of the faculty awards the three winners from each section. Till the night have doctoral students a chance to informally consult their researches on the social evening with abundance of food and congenial music.

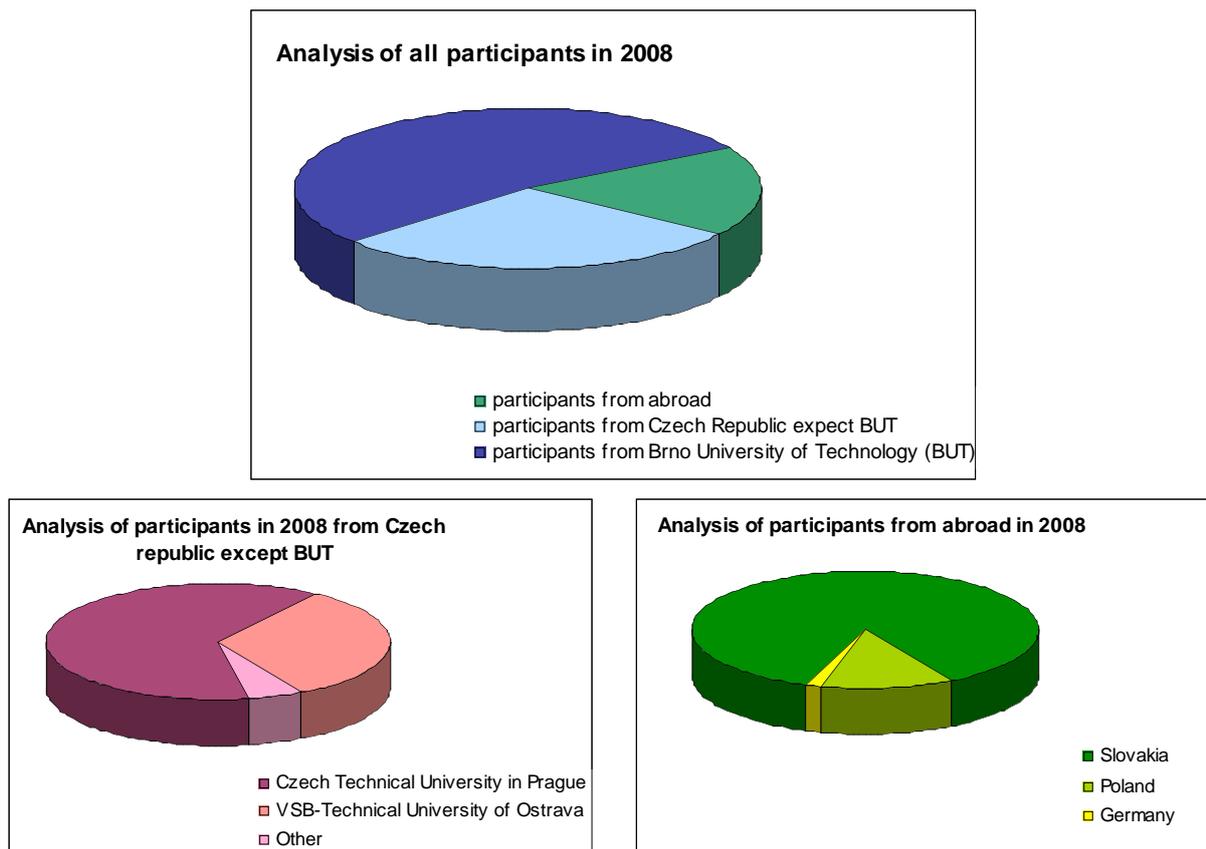


Fig. 3: Structure of participants of the JUNIORSTAV conference in year 2008

2.3 Organisers View

Works related to the conference organization last for half a year. Academic staff determined that all main activities have to be carried out by postgraduate students. First we had to start up web pages of conference. One of the biggest troubles we had with looking for the money. All expenses related to the conference preparation should be covered from conference fees and with help of sponsors. Finally we succeed and acquired 35 companies with substantial sponsor's fees (e.g. Metrostav, Intergraph, Geodis etc.). Organization of the conference was attended with advertisements in technical magazines and sending invitations to other universities.

For each participant we had to arrange the lunch and small refreshment during the day, possibly accommodation in hotel. After the presentations and proceedings we prepared an evening party with music band.

One of the most important requirements for successful course of each conference is to compile and publish the proceedings of papers. This year all the abstracts were published in paper form (478 pages) and full versions of papers and reviews are attached on CD-ROM. Reviews are required from specialists in given problematic for the reason of preservation high

quality of papers. Head organisers co-operate with organisers of all sections who collect and check all contributions and put it into correct form.

The last and the most pleasant activity is to arrange smooth running the day of the JUNIORSTAV conference: welcome all the participating postgraduate students, meet important members of academic staff and have a chance to watch lectures in all sections. But the preparing works have also not so positive side. All activities of the organisers are closely watched by administration of university and all decisions must be consulted. There were big differences in the planning of terms and conference fees. Due to this fact we learned how to cautiously communicate with members of academic staff, how to write official reports or invitations, and how we could by compromise means get our way.

For these reasons the organization of the international conference JUNIORSTAV 2008 was a big opportunity to obtain experiences in activities which ordinary postgraduate student doesn't pursue. Thanks to all organisers, especially from geodesy department, for their helpfulness and enthusiasm to organize the conference. Next year of the professional conference for postgraduate students JUNIORSTAV 2009 will take part in January 2009 at the Faculty of Civil Engineering Brno University of Technology.

3. CONCLUSIONS

Doctoral students of FCE BUT organize the doctoral scientific conferences yearly since 1999. The 10th conference of postgraduate students JUNIORSTAV 2008 took place in January 2008, with more than four hundred participants from Czech Republic and neighbouring european countries. Department of Geodesy and its doctoral students were deputed to organize the jubilee event. While in 1999 there were only 26 participants, in 2008 the conference was organized in 8 main sections which covered thematically the main branches of civil engineering, geodesy and cartography and authorized appraising. Eight main sections and altogether twenty subsection of the conference had been fully attended.

The conference gives room for wide presentation of doctoral professional activities and scientific research results, and confront it with participants from different workplaces. Important part of doctoral success is co-action with colleagues from other school and also from practice and to obtain view on their problems from another side. Also important is the possibility of new personal contacts between students of different universities, for exchange of professional experience, and chance to present results of individual work to interested professional community. The conference covers one of the basic goals of postgraduate studies – to improve the quality of education of young scientists and technical professionals in fields of civil engineering and geodesy and cartography fields.

It can be declared that the conference contributes to demands of the new educational era, as stated in (Enemark, 2007): “A successful educational system depends on a comprehensive interaction between education, research and professional practice. The universities should act as the main facilitator within the process of forming and promoting the future professional identity. This responsibility or duty of the universities should be carried out in close cooperation with the industry and the professional institutions.”

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BIOGRAPHICAL NOTES

Anna Hašová graduated in 2006 at Brno University of Technology, under the Faculty of Civil Engineering. Since 2006 postgraduate doctoral student of Geodesy and Cartography. Since 2006 lecturing at Brno University of Technology, Department of Geodesy. Head organizer of international conference of postgraduate students JUNIORSTAV 2008.

Otakar Švábenský graduated in 1971 at Czech Technical University in Prague, under the faculty of Civil Engineering. Worked for a short period as a surveyor. Since 1975 lecturing at Brno University of Technology, Department of Geodesy. First scientific degree (CSc.) in 1987. Associate Professor in 1993, Professor in 2006. Czech national delegate for FIG Commission 6. Special interests: engineering surveys and satellite geodesy. Prof. Švábenský was head of scientific commission of JUNIORSTAV 2008.

Josef Weigel graduated in 1975 at Brno University of Technology; 1981 first scientific degree (PhD.); 1987 associate professor; since 1979 member, 1992-2006 national delegate for FIG Commission 2, since 1994 chairman of the Czech National Committee for FIG, since 2004 Head of the Department of Geodesy, research activities in problems of geodetic networks. Specialisation: theoretic geodesy, theory of errors and adjustment, GPS measurements, cave measuring (speleology).

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