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## Sixth International Meeting of the Pollen Monitoring Programme Jūrmala, Latvia, 3<sup>rd</sup>–9<sup>th</sup> June 2007

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Szóste Międzynarodowe Spotkanie w sprawie Programu Monitoringu Pyłków Kwiatowych,  
Jūrmala, Łotwa, 3–9 czerwca 2007

The 6<sup>th</sup> Meeting on the Pollen Monitoring Programme (PMP) was organized by the employees of the Faculty of Geography and Earth Sciences at the University of Latvia in Riga. The scientific sessions were held in the conference hall of the “Lielupe” Hotel in Jūrmala Bulduri, located in the seaside resort of Jūrmala. In total 59 participants took part in the proceedings. They came mainly from Europe, but Latvia was most strongly represented among the 17 European countries. Six researchers from Poland took part in this event (including two persons from Lublin, two from Toruń and two from Gdańsk).

The PMP Project aims at quantifying modern pollen deposition of trees, shrubs and herbs in different vegetation units across Europe and outside the continent (<http://pmp oulu.fi>). As the program has now been operating for ten years, such long-term data series offer varied possibilities of analysis, including comparisons between other data sets and with related meteorological parameters as well as the results of aerobiological monitoring. At this stage, it is possible to quantify the relationship between vegetation cover around pollen traps and pollen accumulation rates and to conduct detailed investigations of landscape changes or evaluate models of pollen dispersal.

The participants of the 6<sup>th</sup> PMP Meeting were greeted by Prof. Laimdota Kalnina (Chairperson of the Organizing Committee and National Coordinator of the PMP for Latvia) and Ass. Prof. Peteris Skinkis – Head of the Institute of Geography (Faculty of Geography and Earth Sciences at the University of Latvia in Riga). After a short opening speech by the PMP President Prof. Sheila Hicks (Institute of Geosciences at the University in Oulu, Finland), a 50-minute keynote lecture was presented by an invited speaker Dr.

Anneli Poska from the Institute of Geology at the University of Tartu, Estonia. Her lecture concerned estimating the spatial scale of pollen dispersal in the semi-cultural landscape of the Roztocze region (SE Poland) and was based on a two-year cooperation with Irena Agnieszka Pidek from the Institute of Earth Sciences, University of Maria Curie-Skłodowska in Lublin. For over five years, Anneli Poska had been working on landscape modelling within the POLLANDCAL network. The results of her investigations proved the usefulness of combining the PMP and POLLANDCAL data.

Oral presentations during the Meeting were divided into 6 sections which consisted of three to five 20-minute speeches. Altogether, 22 oral presentations were given. The first speech in section 1, entitled “25 years of monitoring pollen deposition. What have we learnt?” was a very interesting oral presentation regarding the history of monitoring pollen deposition in Europe. The President of the PMP – Sheila Hicks started from the early experimentation period (between 1969 and 1981) in northern Finland which revealed that pollen trapped one meter above the ground level, although recording the forest signal, underestimates herbaceous plants, and that regional vegetation signal remains dominant in pollen assemblage if a mosaic of different vegetation units are monitored. Then, she described the state of the investigations on pollen monitoring in northernmost Finland and compared the obtained results with those from other parts of Europe. The comparison proved that pollen productivity for one tree taxon varies greatly along the geographical range of that taxon. S. Hicks stated that because the source area of pollen is very large and because the pollen amount is a reflection of pollen productivity, the annual pollen deposition gives a particularly strong climate signal. The results of the investigations expressed as pollen accumulation rates (PARs) can be used not only to delimit tree lines in fossil pollen sequences more precisely than the traditional percentage method but also to establish landscape openness and its changes through time. PARs can likewise be used to extract a temperature record from fossil sequences sampled at a near-annual temporal resolution and to evaluate models of pollen dispersal and deposition.

The second oral presentation in this section focused on pollen monitoring in the area of Georgia. Eliso Kvavadze (Institute of Palaeobiology of Georgian National Museum in Tbilisi) presented the results concerning ten-year monitoring of arboreal pollen in the Lagodekhi Reserve. The next three oral presentations concentrated on the topics: pollen monitoring of the mountain areas of the Czech Republic in 1996–2006; results of ten-year pollen monitoring in Latvia; and five years of pollen monitoring in different plant communities along the Bulgarian Black Sea coast.

Section 2 was entitled “Pollen-climate relationship” and was presided over by Sheila Hicks. Antti Huusko (Thule Institute at the University in Oulu, Finland) presented the results of a study of pollen accumulation rates and their relationship with meteorological parameters. The topic of the next oral presentation in this section was the climate changes in Latvia. The results of fifteen-year studies in the Swiss Alps were showed by Pim van der Knaap and Jacqueline van Leeuwen. The researchers concentrated on pollen accumulation monitored with 23 traps in four tree-limit areas in the Swiss Alps, starting in 1996 in Grindewald (northern Alps), and in 1992 in Aletschwald (north-central Alps), Simplon (central Alps), and Zermatt (south-central Alps). They presented a graphic comparison of pollen accumulation rates of 17 pollen types with different climatic parameters.

Section 3 included four oral presentations. The topics of these presentations were strictly connected with the section title, i.e. “Pollen-vegetation relationship.” The successive lectures concerned “The representation of *Pteridium* in Tauber trap samples from a range

of habitats across Europe;” “Modern pollen spectra from Tuchola Forest;” “Interannual flowering variability and stand scale dynamics monitored by pollen traps below the canopy;” and “*Abies* pollen depositions in different vegetation units of the Roztocze region (SE Poland).”

Dr Thomas Giesecke from the Department of Geography at the University of Liverpool (United Kingdom) chaired the fourth section entitled “Surface pollen samples: traps, mosses and soils.” During this section, Jacqueline van Leeuwen presented a lecture that was exceptionally different from any other speech of this Meeting. It concerned spores of two fungi species growing on dung in Swiss Alpine pollen traps and in sediments from the Alps, Bhutan, and the Azores. These fungi are considered indicators of pastures and can be obtained during classic laboratory preparation of fossil samples for pollen analysis.

Anne Bjune from Bjerckness Centre for Climate Research, University of Bergen in Norway showed the results (obtained by her and colleagues) in an oral presentation entitled “Pollen traps below, at, and above the present day tree-line at Upsete, western Norway.” Because the pollen data alone often do not give very detailed information about the presence or absence of tree at tree-line due to long-distance transport of pollen in open and semi-open landscapes, the researchers decided to study the difference in pollen production and pollen representation at sites situated along an altitudinal transect across the present day tree-line. Even though the distances between the traps were not long, local factors seemed to have a great influence on pollen representation within different vegetation types. The modern data obtained by the authors can be compared with modern macrofossil data to make new interpretations about the past tree-lines and general vegetation history in the above-mentioned region.

Preliminary results of pollen deposition in a vineyard of Kvemo-Magaro village (Kakheti, Georgia) were presented by Eliso Kvavadze. The researcher focused on a comparison between pollen traps and surface soil samples. The last speaker in the section 4 considered how different sources of modern pollen data reflect actual vegetation. The researchers Olga Lisitsyna, Sheila Hicks and Satu Räsänen compared pollen deposition in moss samples, pollen traps and modern lake sediments.

Closest to practice was section no. 5 entitled “Applications of pollen monitoring” and was presided over by Pim van der Knaap. During this section, three oral presentations were delivered, entitled as follows: “Using modern pollen spectra from Southern Siberia for interpretation of Central European landscape and vegetation of the Full and Late Glacial,” “Moss polster and fossil studies in the Linje Mire, the relict stand of *Betula nana*, the Che<sup>3</sup>mno Lakeland,” and “The comparison of Pollen Stratigraphy between Marmara Sea and Southern Black Sea.”

Section no. 6 was entitled “Pollen monitoring by different methods.” The first oral presentation by Hanna Ranta from the Department of Biology at the University of Turku (Finland) was a comparison of time-series measurements between a volumetric air sampler and a Tauber pollen trap in the northern tree-line area of Fennoscandia. Elena Severova from the Biological Faculty at M.V. Lomonosov Moscow State University reported her observations of long-distance transported pollen in the aeropalynological spectrum of Moscow. Two researchers from Gdańsk presented their results concerning modern annual pollen deposition in the Kashubian Lakeland (N Poland) against aerobiological data from Gdańsk.

The last item on the programme during the first day of the Meeting was a poster session which was held in the conference hall. Each of the 22 posters presentations was

described by one of the authors in a 5-minute speech. The titles of the poster presentations reflected the wide range of topics concerning the programme of the Meeting. Some of them were devoted to pollen-vegetation relationships in the surroundings of aerobiological or PMP sampling points (e.g. "Relationship between pollen frequency in moss polsters and vegetation composition in PMP stations located in the Kashubian Lakeland (N Poland)" by M. Zimny & J. Święta-Musznicka; "Vegetation of mire microlandscapes as source area for pollen influx in the Teici Mire" by A. Nameteva & L. Kalnina; "The vegetation of surroundings of aerobiological sampling site" by V. Meltsov & M. Saar). However most of the posters were dedicated to one or two special taxa being monitored (e.g. "Nine years of annual pollen deposition in the *Taxus baccata* reserve in the Wierzchlas, Tuchola Forest, N Poland 1998–2006" by A. M. Noryśkiewicz; "Monitoring modern pollen deposition in fir forests of the mountain Timfristos, central Greece" by S. Panajotidis and co-authors; "Pollen of the Antarctic plants *Colobanthus quitensis* and *Deschampsia antarctica* and its representation in moss polsters" by E. Szczuka and co-authors; "Ragweed pollen in aeropalynological spectrum of Moscow" by S. Polevova and co-authors).

On the 6<sup>th</sup> of June the PMP Business Meeting was held during which new officers were elected and eight working groups devoted to special subjects were created. The following list includes the names of the working groups, their titles and the e-mail-addresses of their coordinators. It has been stressed that the working groups are open to anyone interested in these or related subjects.

Group 1:

Tauber traps + aerobiology monitoring – long-distance transport problems.

Coordinator: Laimdota Kalnina <laimdota.kalnina@lu.lv >

Group 2:

Climate change and pollen production.

Coordinator: Pim van der Knaap <knaap@ips.unibe.ch >

Group 3:

Estimating pollen production (PPE) for major wind-pollinating species.

Coordinator: Anneli Poska <poska@gi.ee >

Group 4:

Landscape change, both gradual and dramatic.

Coordinator: Anne Bjune <anne.bjune@bjercknes.uib.no >

Group 5:

Comparing pollen traps and other surface samples.

Coordinator: Mariana Filipova-Marinova <marianafilipova@yahoo.com >

Group 6 (two subgroups):

Concentration on focal species.

Sub-group 6a:

Concentration on tracing pollen deposition of selected tree taxa *Fagus*, *Abies*, *Picea*, *Alnus*.

Coordinator: Irena Pidek <ipidek@biotop.umcs.lublin.pl >

**Sub-group 6b:**

The pollen deposition of under-represented non-arboreal taxa.

Coordinator: Heather Pardoe <Heather.Pardoe@museumwales.ac.uk >

**Group 7:**

Applying modern pollen spectra to fossil profiles.

Coordinator: Voitech Abraham <voitech.Abraham@seznam.cz >

**Group 8:**

Database development, PMP web page.

Coordinator: Antti Huusko <antti.huusko@oulu.fi >

At the occasion of the business meeting, Sheila Hicks – the PMP founder announced her retirement from the position of PMP president. The whole PMP community nominated her Honorary President of the Pollen Monitoring Programme and discussed how to steer the project in the future. It was concluded that PMP will retain an advisory council led by a chairperson. Two old board members were re-elected and three new members were elected so that the new advisory board now consists of seven persons listed below:

Chairperson – Irena A. Pidek (M. Curie-Skłodowska University in Lublin)

Database updates – Thomas Giesecke (Department of Geography at the University of Liverpool (United Kingdom) and Geological Survey of Denmark and Greenland GEUS, Copenhagen (Denmark))

Meetings Secretary – Mariana Filipova-Marinova (Museum of Natural History in Varna, Bulgaria)

Coordinators of working-groups – Pim van der Knaap (University of Bern, Switzerland); Heather Pardoe (Dept. of Biodiversity, Natural Museum of Wales); Anneli Poska (University of Tartu, Estonia); Anne Bjune (University of Bergen, Norway)

During the Meeting in Jūrmala updates on the next PMP Meeting were announced. The meeting in 2009 will be held in Greece, and will be organized by Sampson Panajiotidis and Achilles Gerasimidis – employees of the Laboratory of Forest Botany-Geobotany, School of Forestry and Natural Environment at Aristotle University of Thessaloniki.

At the end of the 6<sup>th</sup> PMP Meeting in Latvia the newly elected chairperson thanked the organizers warmly. The whole PMP community owed its gratitude mainly to Laimdota Kalnina for her excellent work and efforts put in organizing the current meeting.

After hearing the oral presentation on the second day of the Meeting, the majority of the participants took part in a sight-seeing tour to Riga, during which the efficient and hospitable organizers created a nice atmosphere. The knowledge of the history of the Latvian capital city presented by the organizers was very impressive. During the Meeting, there were organized two scientific trips and a post-conference excursion. On the first, one-day trip we visited the Vidzeme Highland including the Gauja National Park, Sigulda, Taurene, } raiši Lake Castle and Cēsis Town. During this excursion the participants had a possibility to visit pollen traps in the Suda Mire and Taurene Integrated Monitoring Station. The second scientific trip, to the Kemeru National Park allowed the meeting participants to see the Lielais Kemeru Mire with its unique raised bog vegetation and pollen traps located in sites comparable to fossil situations. On the last day, the full-day post-conference excursion was organized. Its route ran along the western coast of the

Gulf of Riga. During this trip the participants visited the Lake Engure Nature Park, interdune mires close to Roja, the Neolithic site at Purciems, the Kolka Cape and the Slītere National Park, where pollen monitoring has been in progress. On the way back, we also saw the “Zilie Kalni” nature monument. All excursions were guided by experienced researchers, mainly botanists who prepared different materials exhibiting the glacial geology of the field excursion areas, the geobotanical characteristics of the regions, and data concerning palynological studies. The organizers prepared a special “Field Excursion Guidebook” (The 6<sup>th</sup> PMP Conference. Pre-Conference and Post-Conference Field Excursion Guidebook. University of Latvia, Riga, 2007. 70 pp).

The scientific atmosphere in the conference hall and during the excursions made the Meeting in Jūrmala a very important scientific and social event. The abstracts of the keynote lecture, the oral and the poster presentations were published in the form of a special book containing also the list of participants (Pollen Monitoring Programme, Volume of Abstracts 6<sup>th</sup> International Meeting, University of Latvia, Riga, 2007. 83 pp).