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German Research Ship R/V Sonne working in the New Zealand region.

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detachment marking the transition with the overlying superstructure, as well as summarize our level of understanding of the structural evolution of the TSS. The review will also include an evaluation of rates at which processes such as thickening, crustal extrusion, and exhumation take place in the central Nepal Himalaya.

Geological and geophysical applications of new-generation satellite gravity and magnetic data

Prof. Ron Hackney
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The CHAMP, GRACE and soon GOCE satellites provide uniform, almost global coverage of gravity and magnetic data. Whilst the use of these data has so far focused on geodetic, climatic, oceanographic and hydrographic applications, there are numerous possibilities for applying the data in solid-Earth geophysics. Such applications include: regional tectonic interpretation and modelling (especially at continental scales and in frontier regions), regional-residual field separation, plate reconstruction and even subduction-zone structure

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Fluvial Geomorphology and Active Faulting in the Poukawa Fault Zone: New twists and turns.

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Over the last 18 months we have been working on issues of surface faulting avoidance, fault mapping and large earthquake occurrence in Central Hawke's Bay District between Waipukurau and Otane. In this talk we outline where this work started, how we have set about dealing with the land zonation of active reverse faults there, what fluvial geomorphology, terraces, OSL dates and exceptional LiDAR data (...compared to trenches) can tell us about earthquakes, and what the activity of a number of faults in the Poukawa Fault Zone is. This work has coincided with the search for the rupture source of the 1863 Waipukurau earthquake, and consideration of rupture process for faults in the Poukawa Fault Zone c.f. the 1931 Hawke's Bay earthquake source.

People.

A Bit of History (via IASPEI)

Andrija Mohorovičić (1857–1936) was born 150 years ago. Andrija Mohorovičić, geophysicist of world renown and one of the greatest Croatian scientists of all times, was born 150 years ago, on 23 January 1857 in Volosko near Rijeka, Croatia. In 1875

he enrolled into the Prague University to study mathematics and physics. After graduation, he taught at high schools in Zagreb and Osijek, and the Nautical School in Bakar. In the year 1892 he became director of the Meteorological Observatory in Zagreb. The following year Mohorovičić obtained the doctorate of philosophy at the Zagreb University, where he was later elected a titular associate university professor to teach courses on geophysics and astronomy. He became the corresponding member of the Academy in 1893, and the full member in 1898. Mohorovičić retired in 1922. At the beginning of his career, Mohorovičić was engaged in meteorology. His scientific interests lay in the explanation of various meteorological phenomena – atmospheric dynamics and observations of rare events (e.g. tornado near Novska, whirlwind near Čazma). He also studied the climate of Zagreb, and the decay of temperature with height. Without having proper instruments, he builds his own nephoscope, a camera obscura-like instrument for observation of clouds. These observations formed the basis for his dissertation. As only recently re-discovered, Mohorovičić was probably the first to describe atmospheric rotors with the horizontal axis, which he observed during bora-wind episodes at the northern Adriatic. Although the paper about it appeared in 1889 in one of the leading meteorological journals of the time, and was immediately translated into English, it somehow disappeared from the lists of references in the 1930-ies. The following citation of his, from 1901, is perhaps the best to illustrate how clear his visions were: "...The ultimate goal of a meteorologist is to set up a system of differential equations of the movements of the air, and to obtain as an integral the general atmospheric circulation, and as particular integrals the cyclones, anticyclones, tornados, and thunderstorms...". A perfect description of today's weather forecast, at the very beginning of the 20th century it was even beyond science fiction... Mohorovičić is also recognized for the unification of the meteorological service in Croatia and Slavonia, and was the first in Croatia to publish weather forecasts in daily papers. About the turn of the century Mohorovičić's scientific interest turned almost exclusively to seismology. The reason for this dramatic change is not known – one can only speculate that intense seismic activity around the Croatian capital in the late 19th century ignited the spark in his curious mind. The formal background was also set, as an Earthquake Committee of the Academy was established in 1880 when Zagreb was devastated by a large earthquake, and Mohorovičić later became actively involved. He founded the Zagreb seismological station in 1906, when he installed the Vicentini-Konkoly seismograph in the basement of the Meteorological Observatory (and on the seismogram number 9 he recorded the great San Francisco earthquake!). Soon he realized that better instruments are needed, and purchased the Wiechert horizontal seismographs of 80 and 1000 kg, which became operational in 1908 and 1909. And in his words: "... with this we are on the level with all the better observatories in Central Europe...". The meticulous analyses of recordings of the Kupa Valley earthquake of 8 October 1909 made by these instruments, together with seismograms collected from all over Europe, enabled him to prove the existence of the crust-mantle boundary, which later became known as the Mohorovičić discontinuity. This unveiling of one of the big secrets of the Earth's interior places him among the founding fathers of the modern seismology. It was in line with how he saw the essence of this young scientific discipline: "... The goal of seismology is to study the interior of the Earth, and to continue where the geologist stops, and it has in modern seismographs a sort of binoculars that enables us to look into the largest of depths...". This discovery, recognized as one of the milestones of science in the beginning of the 20th century, is also the most important scientific

contribution ever published in a Croatian journal. There are also other, less known achievements of his – let's only briefly mention his exponential law of velocity increase with depth, an elegant method of location of epicentres (Mohorovičić's epicentrals), a method to determine total friction in mechanical seismographs, a novel seismograph design (unfortunately never realized), etc. Mohorovičić was also among the first to recognize the importance of seismic resistant design of buildings. Indeed, in a series of lectures in the Croatian Society of Engineers and Architects, as early as 1909 he attempts to "... explain how the Earth trembles, and how these tremors affect buildings, and draw attention to some principles that both architects and building contractors should follow...". Furthermore: "... In order to study earthquake effects on buildings, we must first accurately represent the shaking of soil beneath the building, as well as the forces the shaking exerts, and then we must study how these forces affect the building as a whole and its individual parts...". He goes on to analyze the effects of building resonance, and computes accelerations for various ratios of the period of dominant shaking and the building eigen-period. Quite ahead of his time, he sets some of the basic principles of earthquake resistant design, and warns against erecting heavy buildings on soft and steep slopes, suggests firm joints between basic building skeleton, the beams and the walls, etc. He was also the first one to statistically compute expected exposure of buildings in Zagreb to earthquakes, and tries to persuades entrepreneurs "...to consider the earthquake hazard and spend more, in order to make buildings more resistant and safe...". Andrija Mohorovičić was a very careful, pedantic and diligent scientist, who enjoyed to search for explanations of observations in theory, but never favoured theory over observations. A true erudite, he spoke – besides his mother tongue – also English, German, Italian and French (in addition to Latin and Greek). He published about 40 papers, of which he was always the only author. This speaks not of his vanity, but rather of hard conditions he had to work in, resulting in a persistent shortage of co-workers. His thoughts and ideas were truly visionary, often decades before his time (harvesting the wind energy, hail suppression, Earth and atmosphere models, deep earthquakes, earthquake-resistant design...). In 1970 one of the craters on the dark side of the Moon was named after him, as was the asteroid No. 8422 in 1996. Recently, the crust-mantle boundary on the Moon as well as on the Mars have also been called the Mohorovičić discontinuity. Andrija Mohorovičić, as one of the very few Croatian scientists of international reputation, made his whole career in his homeland, where he is recognized as the founder of the Zagreb seismological school, the Croatian seismological and meteorological surveys, and of the public time service. Owing to the tradition he initiated, University of Zagreb is among the few in the world awarding a degree in seismology on the undergraduate level. Croatian scientific community will mark this anniversary by a series of lectures and articles during the whole 2007, and a postage stamp dedicated to him will be issued in April. His bust will be erected in front of his house in Volosko. The main event will be an international meeting with invited speakers (in Zagreb and Opatija, October 2007) dedicated to Mohorovičić's scientific legacy and to development of geophysics since his times.

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