Workshop Report

IUSS WORKING GROUP ON PROXIMAL SOIL SENSING



The Second Global Workshop on Proximal Soil Sensing

May 15-18, 2011

Montreal, Quebec, Canada

This workshop was organised to bring together those developing and using proximal soil sensors for applications in soil and environmental sciences and engineering. It was held under auspices of international union working group on sensing (WG-PSS) organized locally by McGill University (Montreal, Quebec, Canada). Researchers from various disciplines were present, including soil scientists, agricultural engineering, geophysicists, spectroscopists, agronomists, statisticians, as well as commercial entities involved in the development and use of proximal sensors.

With 60 attendees from 18 countries (Australia, Belgium, Brazil, Canada, Czech Republic, Denmark, France, Germany, Italy, Japan, New Zealand, Poland, Saudi Arabia, South Africa, Sweden, The Netherlands, UK, and USA) the workshop included 40 oral research presentations spread over seven sessions. In addition, 10 posters were presented during the breaks. The workshop also had a field day that allowed industry representatives to share information about their technologies. Selected papers have been invited to a special issue of the international journal of soil science *Geoderma*, to be published in 2012. The workshop proceedings and presentations are posted at: http://adamchukpa.mcgill.ca/gwpss.



Figure: Workshop photograph

Main highlights of the workshop were:

- There were good discussions on the scope of proximal soil sensing that are helping to define this new discipline. The main point of the discussions was that proximal soil sensing refers to field measurements made from close by - i.e. not laboratory measurements and not remote sensing.
- 2) The use and development of proximal soil sensing is growing. As well as the more traditional electrical conductivity and optical reflectance measurements there were presentations that showed the use of gamma-ray radiometry, ground penetrating radars, ion-selective electrodes and neutron activation techniques.
- 3) Sensor data fusion was recognized as a promising approach to deal with sensor data as well as interfering effects.
- 4) The number of proximal soil sensing applications is growing and presentations included the use of PSS in ecological, horticultural, viticultural, forestry, archeological, and other studies.
- 5) Integration between spatial and temporal proximal soil sensing, between remote and proximal sensing systems and betweens soil and crop sensing technologies allow better understanding of living systems to be managed according to their local needs.

The third Global Workshop on Proximal Soil Sensing will take place in 2013 in Europe. In 2012, several symposia may be arranged during other meetings, and will include a session in EUROSOIL and in SAGEEP.