

IEEE P4005 Working Group  
Teleconference Kick-off Meeting Minutes  
04 June 2020  
WG Chair: Eyal Ben-Dor  
WG Vice Chair: Sabine Chabrilat  
WG Secretary: Konstantinos Karyotis

1. Call to Order & Opening Remarks
  - a. *The meeting was called to order by the Chair at 16:00. He gave his welcome and opening remarks.*
  - b. *Additional welcome and opening remarks were made by the GRSS Standards Committee Chair, Dr. Siri Jodha Khalsa. In his remarks, he briefed the attendees on the ISO-GRSS liaison through TC211.*
2. Roll Call and Affiliation
  - a. *There were 48 attendees at the kick-off mtg. Their names and affiliation are listed at the end of the minutes.*
3. Establishment of Working Group Membership
  - a. *47 attendees informed the Chair of their interest to become WG members. Upon their indication to become a member of the WG at the kick-off meeting, all attendees obtained immediate voting rights. Here is the [link](#) to the WG roster. The participants attended the meeting are from Brazil, USA, Europe, Australia, Middle East, Africa and Asia*
4. Approval of agenda
  - a. *The Chair presented the meeting agenda and called for a motion to approve.*
    - i. *Motion moved by Dr Khalsa*
    - ii. *Seconded by Dr Chabrilat*
    - iii. *Motion passed unanimously*
5. Review and Approval of WG P&Ps
  - a. *The Chair and IEEE SA Program Manager briefly highlighted sections the P&Ps (which were shared with the participants for their review prior to the meeting). The Chair called for a motion to accept the WG P&Ps.*
    - i. *Motion moved by Dr Khalsa*
    - ii. *Seconded by Dr Chabrilat*
    - iii. *Motion passed unanimously*
6. Appointment of Officers

- a. *The Chair indicated that he was appointed by the GRSS after submitting the PAR. The Chair highlighted that per clause 3.1 of the WG P&Ps, as Chair, he appoints the officers. The following officers were appointed to serve.*
    - i. *Dr. Sabine Chabrilat – Vice Chair*
    - ii. *Mr. Konstantinos Karyotis – Secretary*
  - b. *The Chair called for a motion to accept the officers.*
    - i. *Motion moved by Dr Chabrilat*
    - ii. *Seconded by Mr Karyotis*
    - iii. *Motion passed unanimously*
7. IEEE Patent Policy
- a. *The Chair made a call for potentially essential patents; no one raised concerns for consideration.*
8. IEEE Copyright Policy
- a. *The copyright policy was presented. There were no questions or concerns.*
9. Technical Discussion
- a) *The Chair made a brief presentation regarding the objectives of the WG stating:*

*The chair reviewed the global needs for standard and protocol for soil spectral reflectance measurement and indicated that for many years this issue remains open although some limited efforts has been done to that end. The good results of using spectral information as a proxy for analytical characterization of soils prevent users to tackle this issue. This was obviously obtained from that fact that each group uses his own protocol. Nonetheless this rendered any spectral exchange practices between groups and makes a collaboration to harmonize the huge amount of soil spectra available worldwide difficult. The number of participants in this KOM proved the interest, the need and the desire to execute a joint project that will end up with an agreed standard and protocol for soil spectral measurements. The IEEE SA was found to be an excellent nest to carry out this initiative. His briefly elaborated on this statement by commending:*

*“For over 25 years, groups worldwide have been measuring soil reflectance spectra across the VIS–NIR–SWIR (0.4–2.5  $\mu\text{m}$ ) region in the laboratory, mainly for chemometric purposes. As a result, many soil spectral libraries (SSLs) have been generated with local to continental coverage, each making use of different sensors and protocols. As reflectance spectroscopy of soils is very sensitive to measurement geometry, illumination status, sensor output, sample preparation and more, merging or comparing SSLs remains a problematic issue. In addition, since hyperspectral (HSR) technology is entering a new and promising era (from both air and space domains), utilization of SSLs is becoming more and more attractive to users for direct implementation of SSL models on HSR data. Measuring soil reflectance by agreed standards and protocols should thus also be aligned with the HSR technology. Accordingly, the P4005 working group will work toward establishing a standard and protocol to measure reflectance spectroscopy of soil material.”*

10. Brainstorming & Action Plan

- a. A brainstorming round followed. Initial Ideas and questions for the forthcoming activity of the WG were discussed about the initiative. The following ideas for the WG's activity were discussed:
- i. *The need for limitation to soil material or to also extend to minerals. Suggestion made to stick to soil discipline.*
  - ii. *The need to specify the environments' parameters of the measurements (as room temperature, humidity or light) and the level of their detailed description will accompany the measurements.*
  - iii. *The need for samples exchange through different laboratories for the development of Soil Spectral Libraries*
  - iv. *The need for this initiative to focus on standards for spectral measurements, but when combining (new or existing) spectral libraries not only the spectral but also the wet chemistry measurements are important, as well as recorded metadata.*
  - v. *It was proposed to set up synergies between Mid Infrared and Short-Wave Infrared, and establish guidelines and best practices for the spectral measurements.*
  - vi. *It was pointed out the necessity for standardization of the spectral measurements and the definition of standard wet-chemistry methods.*
  - vii. *High importance must be given on already existing Soil Spectral Libraries, and how it will be reassured that they can be re-useable and will not be decommissioned*
  - viii. *How to explore SSL's with Remote Sensing Data*
  - ix. *The calibration transfer between different equipment*
  - x. *Set the terminology that is going to be used.*
  - xi. *It was proposed to include metadata to really know in what conditions the measurements were taken.*
  - xii. *It was posed as a matter of discussion which range of setups and instruments will be addressed in this Working Group*
  - xiii. *Challenge identified for Working Group is to find a compromise between some standards that are too complicated and standards that are meaningful*

11. Next meeting

- a. *It will be announced after 22<sup>nd</sup> of June.*

12. Adjournment

- a. *The Chair called for a motion to adjourn the meeting at 18:00*
- i. *Motion moved by Dr Chabrilat*
  - ii. *Seconded by Mr Karyotis*
  - iii. *Motion passed unanimously*
- b. *Minutes submitted by: Konstantinos Karyotis*

13. List of attendees

*Agnelo Rocha da Silva, METER Group, Inc. USA,*  
*Andreas Christofe, University of Cyprus in Limassol*  
*Andrew Vincent Bradley, University of Nottingham*  
*Anna Brook, Geogrpahy Department, Haifa University*  
*Anne Gobin, VITO*  
*Antonella Tornato, ISPRA-Institute for Environmental Protection and Research (Rome)*  
*Arwyn Jones, European Commission Joint Research Centre*  
*Asa Gholizadeh, Czech University of Life Sciences Prague*  
*Bas van Wesemael, Universite catholique de Louvain*  
*Brendan Malone, Soil Processes & Function CSIRO*  
*Charles M. Bachmann, Rochester Institute of Technology, Rochester, N.Y*  
*Christian Omuto, FAO*  
*Diofantos Hadjimitsis, Cyprus University of Technology*  
*Dorian Gorgan, Technical University of Cluj-Napoca*  
*Emmanuelle Vaudour, AgroParisTech*  
*Euclides Lourenco Chuma, Photonics Innovation Institute*  
*Eyal Ben Dor, Tel Aviv University | TAU*  
*Fenny van Egmond, Wageningen Environmental Research*  
*Gifty E. Acquah, Rothamsted Research, Harpenden, UK,*  
*Gil Eshel, Soil and Water Conservation Center Israel*  
*Ian Lau, CSIRO Perth*  
*Jean Robertson, The James Hutton Institute, Scotland UK,*  
*José Alexandre Melo Demattê, University of Sao Paulo*  
*Konstantinos Karyotis, Interbalkan Environment Center*  
*Kyriacos Themistocleous, Cyprus University of Technology*  
*Lubos Boruka, Life Science University Prague*  
*Luigi Verzola, STE*  
*Macoumba Loum, National Institute of Pedology*  
*Maria Augusta Knadel, Aarhus University, Dept. of Agroecology*  
*Mariana Hoelent, Unidad de Desarrollo de Aplicacioned Especificas Buenos Aires*  
*Martin Schodlok, Federal Institute for Geosciences and Natural Resources (BGR)*

*Michael Berger, ESA/ESRIN*

*Mila Luleva, Agrocarea BV*

*Nicolas Francos, The Remote Sensing Laboratory, Tel Aviv University*

*Nikos Tsakiridis, Interbalkan Environment Center*

*Nunzio Romano, University of Napoli*

*Raffaele Casa, University of Tuscia*

*Robert Milewski, Helmholtz Center Potsdam GFZ German Research Center for Geosciences*

*Sabine Chabrillat, Helmholtz Center Potsdam GFZ German Research Center for Geosciences*

*Sadeq Dwenee, Ministry of science and technology/ Directorate of agricultural research, Iraq*

*Simone Pascucci, CNR IMAA*

*Siri Jodha Khalsa, National Snow & Ice Data Center*

*Stefano Pignatti, CNR IMAA*

*Theodora Aggelopoulou, Laboratory of Remote Sensing, Aristotle University of Thessaloniki*

*Thomas Schmid, Soil Conservation and Remediation Unit, Department of Environment*

*Veronika Strnadová, Czech Geological Survey*

*Viktor Bacu, Technical University of Cluj-Napoca*

*Yaron Ogen, Martin-Luther University Halle-Wittenberg Institute of Geosciences and Geography  
Department of Remote Sensing and Cartography, Halle (Saale), Germany*