BioSpace25 - Biodiversity insight from Space
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Ecosystem Function and Functional Diversity

Session Chairs:
Roshanak Darvishzadeh, Javier Pacheco Labrador,

Presented Topics

1) A comparative analysis of field-based ecology and remote sensing approaches to plant functional diversity: José Miguel Cerda-Paredes, Laura C. Pérez-Giraldo, Javier Pacheco-Labrador, Anna K. Schweiger, Miguel D. Mahecha, Javier Lopatin, Dylan Craven
2) The death of the Spectral Variation Hypothesis and the rise of its useful 'Zombies': Christian Rossi, Michele Torresani, Michela Perrone, Leon Hauser
3) BOSSE, a Biodiversity Observing System Simulation Experiment for assessing Biodiversity-Ecosystem Function relationships: Javier Pacheco-Labrador, Ulisse Gomarasca, Daniel E. Pabon-Moreno, Wantong Li, Martin Jung, Mirco Migliavacca, Gregory Duveiller
4) Satellite-derived biodiversity effects on the functioning and multifunctionality of ecosystems at global eddy covariance sites: Ulisse Gomarasca, Gregory Duveiller, Javier Pacheco-Labrador, Alessandro Cescatti, Christian Wirth, Markus Reichstein, Mirco Migliavacca
5) 3D biodiversity and ecosystem function: Using lidar and hyperspectral remote sensing to understand ecosystem patterns and processes in a temperate forest: Kyla M Dahlin, Meicheng Shen, Aaron G Kamoske, Adriana Uscanga, Scott C Stark, Shawn P Serbin, Chris M Gough, Ben Bond-Lamberty, Jason M Tallant, Jeffrey W Atkins
6) Quantifying the functional trait variation across tropical forests with satellite data: Jesus Aguirre Gutierrez
7) Exploring tree functional diversity with remote sensing over the Congo Basin within the CoForFunc: Gregory Duveiller[1], Pierre Ploton[2], Nicolas Barbier, Ulisse Gomarasca, Felix Cremer, Maria Piles, Javier Pacheco-Labrador, Jordi Martinez-Vilalta, Jean-François Bastin, Raphaël Pélissier
8)

Recommendations and Key messages

1) There are gaps in understanding of how methods and concepts affect the study of Functional Diversity. Aquatic and extreme biomass are less studied. Standardization of methods is needed to enable comparison across scales. Interdisciplinary collaboration between RS and Functional Ecology is needed to link field-based ecology and remote sensing approaches to plant functional diversity.

2) The combination of spectral data with ancillary data (parcel level data) is more meaningful when studying the spectral diversity; and spectral and temporal variations and interactions are needed to explain plant diversity, or look at intraspecific variation, between species.

3) Satellite-derived biodiversity can reveal the role of Functional Diversity and ecosystem functionality, though we need to be careful on how we infer functional diversity from space. Here, simulations can be of help. Satellite data are affected by factors whose effects need still to be understood.

Recommendations and Key messages

4) To study disturbances using RS, structure can be an important variable to consider (not only spectral variability). Disturbances could be modelled using different LiDAR metrics at various levels.

5) Collaboration between RS and ecologists is highly recommended.

6) There is a lack of field data in Africa and Asia. Higher spatial resolution data is needed to study functional diversity, particularly in tropical forests in these regions.

7) To study functional diversity using remote sensing space agencies are requested to: (i) Facilitate RS data at the field scale (ii) Facilitate integration of multiple sources (iii) Facilitate Open Access imagery and workflows