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Title of SSS ISSI book (n°71)

Forest Biomass and Structure Observed from Space

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Outline of the special issue

Forests are crucial elements of the Earth system and one of Earth's most precious resources. Forests sustain a myriad of ecosystems that provide habitats for many flora and fauna, yielding rich resources for human development and providing an important sink in the global carbon cycle. In response to the need to monitor these ecosystems, ESA, NASA and DLR are developing the BIOMASS, GEDI, NISAR and Tandem-L missions. These missions will use innovative SAR and Lidar technologies to measure forest structure parameters (such as forest height and forest biomass) and their change with time on a global scale with much more precision than possible today. They are expected to be in orbit within the next five years, providing a unique and powerful combination of techniques to monitor Earth's forests.

These missions will meet a pressing need for information in the forests globally. Analysis of the global carbon cycle shows that the annual emissions of carbon from fossil fuels and land-use change are larger than the annual accumulations of carbon in the atmosphere and oceans. This suggests a largely unknown terrestrial sink for carbon, which has never been measured. Measurements of the BIOMASS, GEDI, NISAR and Tandem-L missions offer a unique opportunity to reduce the uncertainties in both the global net emissions of carbon from forest cover change and global changes in aboveground forest biomass. This will significantly improve our understanding of the global carbon cycle, which will be of essential value for climate modeling and policy adaptation actions.

This special issue will provide an overview of the related science questions, community needs and earth observation technologies and capabilities to address these questions and needs. A specific emphasize will be put on the synergies and complementarities between the different observation types and on the potential benefits of a joint exploitation of these data.

Table of Contents

2. **Forest biomass in the Earth system: its role and the major unknowns.** *Markus Reichstein.*

3. **The role of space measurements of forest biomass and structure in environmental management and policy.** *Martin Herold **

4. **Combining space measurements to understand the dynamics of forest structure: the unprecedented opportunities of the next decade.** *Shaun Quegan.**

5. **Forest biomass and structure: emergent relations from forest and C cycle models.** *Andreas Huth,* Rico Fischer, Friedrich J. Bohn and Nikolai Knapp.

6. **Constraining the land carbon cycle with space data: current status and prospects**. *Jeff Exbrayat.**

7. **The status of technologies to measure forest biomass and structural properties: State of the art in lidar**. *John Armston.**

8. **The status of technologies to measure forest biomass and structural properties: State of the art in PolSAR.** *Thuy LeToan.******

9. **The status of technologies to measure forest biomass and structural properties: State of the art in PolInSAR.** *Marco Lavalle******

10. **The status of technologies to measure forest biomass and structural properties: State of the art in SAR tomography.** *Stefano Tebaldini*,* Thuy Le Toan, Ludovic Villard, Din Ho Tong Minh, Jérôme Chave and Mauro Mariotti d'Alessandro.

11. **Combining measurements – lidar and SAR - to measure biomass and structure: early lessons learned from from LVIS and Tandem-X with an outlook on GEDI, Tandem-L and Biomass.** *Matteo Pardini.**

12. **Innovations in ground and airborne technologies as reference and for training and validation: Terrestrial Lidar Scanning.** *Mat Disney **

13. **Innovations in ground and airborne technologies as reference and for training and validation: Drone and UAV lidar systems.** *Jim Keller**

14. **Combining TLS, drone and forest mensuration: the road to a new allometry?** *Martin Herold*,* Maxime Rejoun.

15. **CEOS approach to training and validation of space-based estimates of forest properties/biomass.** *Laura Duncanson**

16. **Forest observation with very high resolution imagery (Visual interpretation of VHR optical imagery by experts and the crowd to extract forest parameters and train fusion algorithms.** *Dmitry Shepashenko**

17**. Progress, prospects and challenges for mission-integrated in situ cal/val networks: the 4th mission.** *Jerome Chave**

18**. Assigning uncertainty information to space-based estimates of forest properties, definition of terms and IPCC recommendations**. *Ron McRoberts**

19. **Identity matters: multi-scaler impacts of wood density on tropical forest biomass.** *Oliver Phillips**

*: means confirmed at the date of 8 February 2018

Timelines

- Deadline for articles submission: **15 June 2018**
- Deadline for review: 5 to 6 months
- Acceptance of all articles: **April 2019**
- Surveys in Geophysical special issue publication: **End of summer 2019**
- SSSI book publication: **Autumn 2019**
- Number of articles: up to 18

Guideline

- Lead/corresponding authors are in italic – Co-authors are then listed in the alphabetic order – Not attending persons (but invited for the Workshop) as well as external co-authors are welcome to participate – Lead authors are responsible to respect the deadline & are welcome to communicate with other lead authors to know about their progress, contents and thus to avoid overlaps
- Number of pages: between 20 & 30 (including figures Figures [between 5 and 15 is the suggested number of figures] & references)
- The Journal is Surveys in Geophysics – The journal scope as well as the instructions for authors can be found here: http://www.springer.com/earth+sciences+and+geography/geophysics/journal/10712
- Articles are overview / review / state-of-art articles.
- Acknowledgments to ISSI will be appreciated.