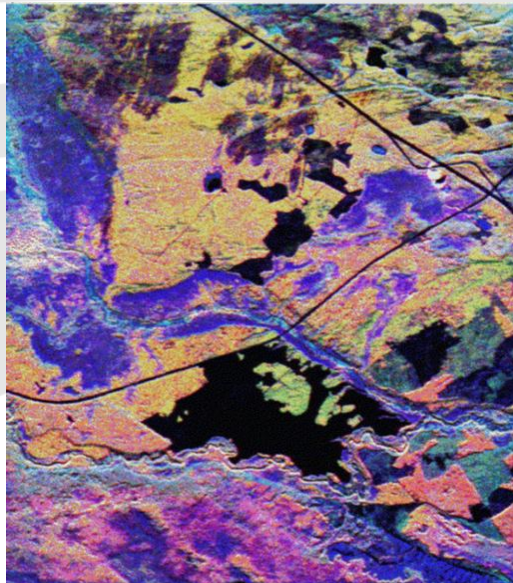


# Vegetation 3-D Structure & Biomass Workshop



## NASA Headquarters Perspective and Workshop Objectives

### Horizontal Structure

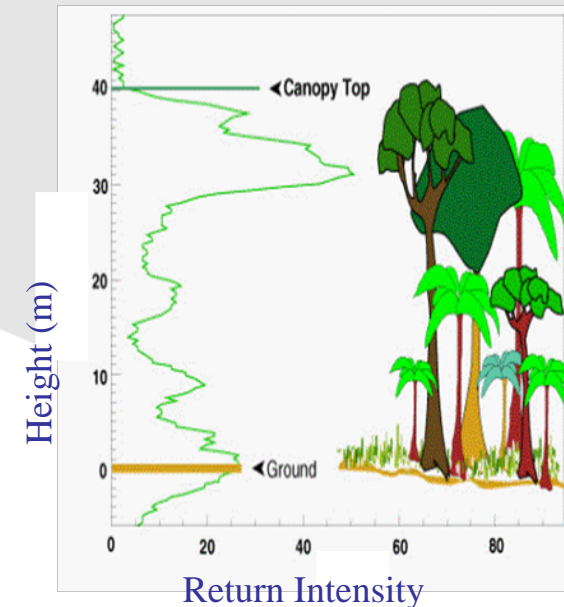


**Diane E. Wickland**

**Carbon Cycle &  
Ecosystems Focus  
Area**

**March 3, 2008**

### Vertical Structure



# Veg3D Structure & Biomass



**Where our community has been:**

- ❖ **Concept Papers submitted in response to NRC's Decadal Survey RFI**
- ❖ **NASA HQ- and NASA Center-sponsored Mission Concept Studies (before and after release of Decadal Survey report)**
- ❖ **DESDynI and ICESat-II Workshops in summer of 2007**

*Ancient History: No EOS SAR and no VCL, but opportunities with SRTM, JERS-1, and more recently, ALOS/PALSAR, and ICESat . . .*

# Veg3D Structure & Biomass



**Where our community is now:**

- ❖ **New starts for ICESat-II and SMAP!**
- ❖ **Resources to study DESDynI (also CLAREO and appropriate mid-term missions . . .)**
- ❖ **A need to assess/refine our requirements**
  - **in the context of DESDynI and ICESat-II and other missions**
  - **in light of mission attributes that must be optimized or for which compromises/solutions must be found to meet the needs of the disciplines partnering in these missions**
- ❖ **A need to conduct preparatory work: for example, algorithm development, generation of test data sets, evaluation of lidar-radar data fusion approaches, exploration InSAR as an alternative to polarimetric SAR in combination with lidar and as an independent measure of structure . . .**

# Veg3D Structure & Biomass



## Objectives for this Workshop:

❖ Engage scientists interested in carbon (biomass, disturbance, carbon accounting, etc.) and ecosystem structure (habitat, biodiversity) in support of DESDynI, BIOMASS, and ICESat-II

→ This workshop addresses vegetation/ecology/carbon science requirements.

❖ Review measurement requirements for major scientific applications:

- above-ground carbon storage and changes therein
- species habitat assessment and biodiversity

→ The focus should be on **organizing our thoughts**; striving to **clearly articulate and explain** the compelling rationales for measurement attributes; identifying where there is **general agreement** and where there are still open issues . . .

# Veg3D Structure & Biomass



## **Objectives for this Workshop (cont.):**

**❖ Assess the applicability for the vegetation/ecology/carbon science of radar (L- and P-band polarimetry and/or InSAR) in combination with multiple-beam lidar – in relation to the recommended DESDynI, BIOMASS, and ICESat-II missions**

**→ Our community is beyond the stage of defining the “ideal” mission to meet our measurement needs; we now have specific missions to further shape and specific partners whose measurement needs must also be accommodated.**

**❖ Identification of areas of research and further development/investigation**

**→ Help to identify and prioritize preparatory activities – NASA mission planning and R & A resources are becoming available**

# Veg3D Structure & Biomass



## **Objectives for this Workshop (cont.):**

❖ **Planning for the publication of review articles, recent case studies, and algorithms to document the state-of-the-art of active remote sensing of vegetation structure and biomass**

**→ Our community needs to document the case for vegetation 3-dimensional structure and biomass cogently and articulately in the scientific literature – and it is high time that those who have been working so hard get some credit for their efforts!**

❖ **Planning for community education and outreach towards the implementation of the missions**

**→ It is time to broaden the base of interested users and beneficiaries of the products and results of these new missions.**



**Thank you for coming.**

**Enjoy the workshop.**

**Stay focused.**

**Publish!**