

## Working Group 3: Forest Change and Biomass Products

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Relevance – products identified by TCO for carbon studies:

1. Deforestation ( $m^2/yr$ )
2. Relative growth/regrowth - aboveground biomass accumulation ( $gC/m^2/yr$ )
3. Thinning – biomass removal – location/extent ( $gC/m^2/yr$ )
4. Biomass inventory (up to some limit) ( $gC/m^2$ )

End-users – would be (initially) the regional carbon studies such as

Siberia

NACP

Europe

LBA

CEOP

East Asia

Product Generation (listed in order of product ‘maturity’):

1. Deforestation (operational) – hh or hv, annual, t2 vs. t1, difference
2. Relative regrowth (operational for regrowth) –
  - (a) hh+hv, t2 vs. t1, difference > biomass increment (requires good registration)
  - (b) interferometry (zero baseline) > extended capability into larger forest classes
3. Biomass inventory (R/D)
  - (a) hh+hv, limited to <100T/ha
  - (b) hh+hv + landcover type (say from MODIS) – improved accuracy, ortho. Req.
  - (c) interferometry (‘vegetation’ baseline – 1.5 km) yield a height product

Notes:

  - the provision of height from InSAR or lidar will greatly improve biomass estimates.

- Would want the ‘vegetation baseline’ as early in mission as possible.

#### 4. Thinning (R/D) – interferometry (zero baseline)

##### Requirements:

1. Observations - May 2002 ascending mode acquisition plan includes
  - Annual observations (hh and hv)
  - ‘three observation periods’
    - t1 - hh+hv
    - t2=t1+46 days – hh+hv (with zero baseline)
    - t3 = t2 + ~ 180 days – hh only (with zero baseline)
  - Current plan is GREAT, with urgent need for one major change -  
 Allow a ‘vegetation’ baseline of ~ 1.5 km as early in mission as possible (like during the commissioning phase). At present, only requesting this once (say for hh data at 28Mhz) with remaining coverage having a ‘zero baseline’.

##### Action item:

Use JERS-1 data to verify use of interferometry for height and optimum baseline length (JPL) and thinning (UM). If JERS data is not suitable, perhaps repeat-pass AirSAR data can be used for same.

2. Funding – needs to be provided as augmentations to the ‘regional’ carbon studies
3. Anticipated problems – regional approach may lead to lack of commonality in algorithms and technique, especially for R/D. Products should be expressed in common units (i.e., gC/m<sup>2</sup>/yr) along with associated accuracies.

Level of ambition – regional startup associated with anticipated ‘funded’ regional efforts

Product validation – via regional efforts and ‘Bigfoot’ like field observations