

**Summary of SDT suggestions of the most important thing that ABoVE should be studying – 17 April 2013
Telecon**

| Causes of Change | Impacts of Change | | Modeling, Scaling, Importance of Remote Sensing |
|--|---|---|---|
| | Ecosystems/Earth System | Society | |
| | Changes in CO ₂ /CH ₄ | | |
| Processes driving → | Changes in Soil Carbon Mobilization of old carbon | | |
| Complex web of interacting drivers and feedbacks → | Changes in land- atmosphere C exchange and changes albedo | | |
| | | Subsistence resource use by local people – based on ecosystem services model | Use RS data to test hypothesis that relate to impacts on local societies |
| | Balance of positive and negative feedbacks between the land and atmosphere | | Validation of models |
| Major drivers of carbon transfers, vertically and horizontal and reducing uncertainties | | | |
| | Changes in ecosystem services – encompasses feedbacks and the broader impacts of changes to the landscape on society in terms of provisional and subsistence services – allows engagement of managers and local communities | | |

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| Role of permafrost degradation on hydrologic and carbon cycles | | | |
| | | How people at local and regional scales are being effected – to what extents are humans resilient to and vlnerable to the impacts of climate change. | |
| Disturbance impacts → | Balance between albedo feedbacks and carbon feedbacks | | |
| Interactions between climate and disturbance regimes → | Ecosystem and carbon dynamics Resiliency of ecosystems landscape scales | | |
| Role of microbial ecosystem dynamics → | SOC destabilization | | Using remote sensing data to test important hypotheses |
| Role of disturbances, in particular permafrost thaw on changes in soil carbon dynamics → | Feedbacks to climate | | Role of remote sensing for spatially explicit observations of changes, particularly surface subsidence |
| | Impacts on C/N and mercury cycles → | Mercury impacts on fish, wildlife, and humans | Integration of observations across space and time |

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| | | | The contributions of geospatial observations to improving the ability to scale observations from local to global scales |
| Disturbance-ecosystem-permafrost interactions | | | |
| | Vulnerability of ecosystems to the integrated impacts of the range of changes that are occurring in the ABR | | |
| How global scale climate forcing interacts with regional disturbance → | Permafrost and ecosystem dynamics | | |
| Consequences of global climate forcing to regional disturbance (e.g., affect of increased temperature on thermokarst, fire, insects, and vegetation change) | | | |

Yellow highlighting indicates that a response was recorded in two separate columns for the same row.