

## Arctic Land Cover Change Index

CAFF is working to produce a set of satellite-based remote sensing products with a geographic focus on the pan-arctic. This will consist of three components:

1. Existing MODIS satellite standard products of relevance to arctic processes will be leveraged and converted to a more arctic-friendly projection facilitating a top-of-the-world analysis perspective.  
The satellite products will be developed for use by different stakeholder groups i.e. GeoTiffs, PDF maps, and animated gifs will be provided to accommodate to a wide audience with different analysis and visualization needs; and products will be organized by terrestrial, marine, coastal, and freshwater disciplines.
2. Landsat images will be used to generate additional remote sensing products at fine scale (30 meter).
3. A remote sensing needs assessment workshop will be conducted at the December 2014 CAFF Arctic Biodiversity Congress.

The list of products is presented in Table below, where the asterisk indicates the minimum product delivery to CAFF. It is possible that some of the listed candidate products in Table 1 may not be available for the entire pan-arctic, therefore a component of task one will be to determine the availability and relevance of the listed products. Some products as indicated in the Table require further evaluation with respect to their accuracy for the pan-arctic.

Products	Discipline	Confidence of Product	Temporal Delivery
Normalized Difference Vegetation Index (NDVI)*	Terrestrial	High	Monthly growing season
Vegetation phenology: start of season (SOS), end of season (EOS), duration of season (DOS)	Terrestrial	To be evaluated (needs to be tuned to the arctic)	To be evaluated
Land surface temperature*	Terrestrial	High	Monthly
Land cover change*	Terrestrial	Medium (relevance to the arctic to be evaluated)	Yearly
Albedo*	Terrestrial	High	Monthly
Snow covered area	Terrestrial	To be evaluated	To be evaluated
Sea Surface Temperature (SST)*	Marine	High	Monthly ice-free
Chlorophyll (chl)*	Marine	High	Monthly ice-free
Dissolved organic carbon (DOC); Suspended minerals (sm)	Marine	To be evaluated	To be evaluated
Primary productivity*	Marine	High	Monthly ice-free
Sea ice concentration*	Marine	High	Monthly ice-covered
Sea ice concentration change*	Marine	High	Monthly ice-covered
Ice dynamics*	Marine	High	Monthly ice-covered
Ice type (age)*	Marine	High	Yearly
Ice albedo*	Marine	High	Monthly ice-covered
Coastline mapping	Coastal	To be evaluated	To be evaluated
Surface water mapping*	Freshwater	High	Minimum one map
Surface water change	Freshwater	Medium	Dependent on surface water map above
Lake freeze/thaw	Freshwater	To be evaluated	To be evaluated
Large lake (>4 km <sup>2</sup> ) chlorophyll*	Freshwater	High	Minimum one map
Shallow water bathymetry	Freshwater	To be evaluated	To be evaluated

\* Minimum product delivery