**Motivation and Methods**

**Goal:** Understand tundra-climate relationships

**Data:**
1. Use 25 km resolution SSMI passive microwave Bootstrap Sea Ice Concentration (SIC); 2. AVHRR Surface Temperature (T_s);
3. SIMMs Normalized Difference Vegetation Index 3G NDVI_3g for the Arctic over the 1982-2010 period. [Raynolds et al, 2012; Pinzon et al. 2011]

**NDVI = (NIR-R)/(NIR+R)**
- NIR: spectral reflectance in near-infrared band (0.725-1.1 μm)
- R: red chlorophyll absorbing portion of spectrum (0.58-0.68 μm)

**Methods:** Standard climate trend and correlation analysis techniques applied to regional (Modified Treshnikov basins) time series of Maximum NDVI, Time Integrated NDVI, Summer Warmth Index, and sea ice concentration constructed using data within 50-km of Arctic coastlines (ocean & land).

**Figure 1.** The new 2011 Updated Treshnikov divisions.

**Summer Warmth, MaxNDVI & Open Water Trends**

- **Snow Water Equivalent trends are heterogeneous**
- **Specific humidity trends from CFSR Reanalysis display increases in Spring.**

**Time Integrated NDVI (TINDVI) Monthly Trends**

- **High Canadian Arctic - July-August greening trends.**
- **SW Alaska browning all summer!**
- **Western Asia is greening all summer.**
- **Chukotka has mixed pattern.**

**Summer SLP decreasing over central Eurasia & AK**

- **July-August low pressure over Laptev and E Siberian Seas may bring cloudiness that leads to reduced summer warmth.**

**References**


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