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### POWER ANALYSIS OF GLOBAL TRENDS IN PHYTOPLANKTON CARBON BIOMASS AND SIZE CLASSES RETRIEVED FROM A MERGED OCEAN COLOR DATA SET

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#### Abstract Text:

Recent research indicates that many decades of monthly observations are required to detect long-term trends in chlorophyll concentration (a proxy for biomass) derived from ocean color satellite data. This underscores the importance of consistent, seamlessly merged long-term multi-sensor satellite data records. Such a record of ocean color remote-sensing reflectance is created by the ESA Ocean Colour – Climate Change Initiative (OC-CCI) project. In addition, bulk chlorophyll alone is not an ideal proxy for phytoplankton biomass, and is not enough to describe ecosystem structure and function. Carbon-based phytoplankton functional type (PFT) retrievals are ideally needed. Here, the OC-CCI data set is used to retrieve a 16-year (1998-2013) time series of phytoplankton carbon biomass and carbon-based phytoplankton size classes, using the KSM09 algorithm to retrieve the particle size distribution first. Carbon concentrations are then estimated via allometric relationships. Global per-pixel power analysis of trends is performed, indicating the number of years required to distinguish a trend of a given absolute magnitude from noise. The estimated autocorrelation is taken into account, which, when positive, increases the record length required to detect a trend.

**Topic Selection:** Ocean Ecology and Biogeochemistry from Space: Next Generation

**Title:** POWER ANALYSIS OF GLOBAL TRENDS IN PHYTOPLANKTON CARBON BIOMASS AND SIZE CLASSES RETRIEVED FROM A MERGED OCEAN COLOR DATA SET

**Submitter's E-mail Address:** kostadinov.t@gmail.com

**Preferred Presentation Format:** Poster (note: all invited presentations will be assigned posters)

**Scheduling Request:** Alternative session: IS007 (Session ID#: 9603)

First Presenting Author

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