Zones of unstable seasonal dynamics of phytopigment concentration in the ocean (by satellite data).

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In the papers of the authors (A. Shevyrnogov, G. Vysotskaya, E. Shevyrnogov. Results of analysis of spatial and temporal long-term stability of quasistationary areas in the Atlantic Ocean based on multi-satellite measurements (CZCS and SeaWiFS data). Advances in Space Research Vol. 33, 7, pp. 1184-1188, 2004) existence of zones, which are quasi-stationary by seasonal dynamics of chlorophyll concentration, was shown. Results were obtained on the base of processing of time series of satellite images CZCS and SeaWiFS. It was shown that fronts and frontal zones coincide with dividing lines between quasi-stationary areas, especially in areas of large oceanic streams. Biota of surface oceanic layer is more stable in comparison with quickly changing surface temperature. It gives a possibility to circumvent influence of high-frequency component (for example, a diurnal cycle) in investigation of dynamics of spatial distribution of surface streams. In addition, analysis of non-stable ocean productivity phenomena, stood out time series of satellite images, showed existence of areas with different types of instability in the Global Ocean. They are observed as adjacent non-stationary zones of different size, which are associated by different ways with known oceanic phenomena. It is evident that dynamics of a spatial distribution of biological productivity can give an additional knowledge of complicated hydrological phenomena of surface oceanic layer. In particular, continuous space remote sensing control is capable to reveal anomalous events, which are impossible to see with standard oceanological methods. Also accounting of chlorophyll concentration unstability is important in the usage of this data in a global modeling of the carbon dioxide cycle.