

Humboldt Kolleg

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### *Global Challenges of the 21<sup>st</sup> Century*

- 1) Technological development and human health/ quality of life*
- 2) Climate change and environmental sustainability*
- 3) Democracy and cohesion in Europe*

### *Assesment of Particulate Organic Carbon in Marine Basins Based on Satellite Information*

Marine basins play an essential role in the global carbon cycle. Overall, the oceans take up more carbon from the atmosphere than it gives up. Apart from the continuous exchanges between the oceans and the atmosphere, the long term sequestrations processes are fundamental for maintaining the overall equilibrium, especially in the context of climate changes. The biological pump is one of the main processes that contribute to the sinking of carbon into deep waters. Understanding the complex mechanisms that dictate the carbon cycle is vital for a proper evaluation and improvement of forecasting models. Complementary to in-situ measurements, such as the ones recorded by the buoys of the Argo program, satellite information can provide extremely useful information regarding the dynamics of dissolved or particulate organic carbon concentrations (DOC and POC) in the upper layers of the oceans, globally and over long periods of time. This presentation will focus on showing the potential of Earth Observation data to retrieve POC distribution maps and will provide some examples in this respect.

**Sorin Constantin** is currently a remote sensing and GIS researcher within TERRASIGNA (Geospatial Services Group). He received his PhD at the University of Bucharest, with a thesis concerning the analysis of sea water turbidity in the Romanian coastal area of the Black Sea based on remote sensing data. He conducted multiple research projects and was the recipient of several grants and fellowships such as: a post-doctoral grant at the Laboratoire d'Océanographie de Villefranche – Sorbonne, France; a post-doctoral research grant from the Research Institute of University of Bucharest; a Fulbright Visiting Scholar grant at the Scripps Institution of Oceanography, USA. Dr Constantin's main areas of interest are coastal and oceanographic optical remote sensing and GIS techniques adapted to these particular aspects.