

Carlos Pedrós-Alió. described ways that we might use remote sensing to ask questions relevant to the census. In illustrating this point, Carlos summarized some of the work of Rafel Simó and colleagues who are using remote sensing to test some parts of the CLAW hypothesis formulated by Charlson, Lovelock, Andreae and Warren (Nature326:655-661, 1987): that dimethylsulfide (DMS) plays a role in regulating the temperature of the planet.

Dimethylsulfoniopropionate (DMSP) gets converted to DMS (a volatile compound), the main source of biologically formed sulfur in the atmosphere above the oceans. Phytoplankton produce DMS that escapes into the atmosphere where it is oxidized to sulfuric acid, acts as a nucleus for the condensation of water and ultimately contributes to the albedo of the planet. When albedo increases, less solar radiation reaches the microbial plankton populations resulting in less photosynthesis and less DMS production creating a feedback loop that contributes to the regulation of the Earth's temperature. These scientists found that if the mixed layer depth is very shallow then almost 100% of DMSP is converted into DMS, and as the mixed layer depth increases this value goes down. Using the mixed layer depth, chlorophyll concentrations and the DMS relationship, these investigators were able to show that predicted DMS concentrations were nicely correlated with the real DMS concentrations. Carlos challenged the workshop participants to see if there are other scientific questions that can be answered using remote sensed data beyond the chlorophyll and DMS examples. In summary, Carlos emphasized that you don't have to be an expert to take advantage of remote sensing data and that even though what you are measuring may not be directly related to remote sensing, there may be ways of correlating your data with remotely sensed data to enhance your area of research.