radiation environment mediated by changes in DOC levels. The identification of biological processes influenced by UV exposure and temperature in predictable ways will improve our appreciation of their combined effects on freshwaters. In the copepod Boeckella antiqua, the accumulation of photoprotective compounds (MAAs and carotenoids) could be dissected out into uptake and elimination processes, both of which are strongly and predictable influenced by UV and temperature. However, Boeckella antiqua is restricted to a few sites in Northwestern Patagonia. Here, we extend the results to B. gracilis, which occurs along a broad latitudinal gradient from 6º N to 49º S. Analyses of mortality trends suggest that increases in temperature will translate into additional photo-toxicity stress in Boeckella species, even under a stable UV scenario.

Dissolved Organic Matter: Long-term Changes in Fluxes, Concentrations and Retention

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In most Boreal lakes, DOM is largely of allochthonous origin. Microbial respiration and photodegradation are sinks for DOM, with the latter process being pH-dependent; photodegradation rate is much faster at lower pH. Sedimentation is also a major sink in most lakes, although photochemical reactions may play a role in this pathway as well. DOM levels in streams are increasing in much of northern Europe and some parts of North America; however, the reasons for this are unclear but have been linked to climate change, land use change, and changes in acid deposition. In other regions, monotonic trends are not observed; for example, in lakes in Ontario there is a synchronous pattern that is inversely correlated with radiation levels. We examine long-term (25 year) changes in DOM fluxes from catchments, concentrations and retention in 7 lakes and their catchments to evaluate the role of climate in mediating these changes.

Detailed Estimation of the C Accumulation Fluxes at Las Tablas de Daimiel National Park (Spain) for the Last 1000 Years and how are Influenced by Climate and Anthropogenic Activities

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Lakes, reservoirs and wetlands have a large importance in the Global Carbon Cycle; because they have a great capacity to sequester C for a long time. However it is difficult to know exactly the amount of C that those ecosystems can store now and in the past. Specially difficult are the estimations for wetlands (the approximations in the literature have errors of the 100%) because are a very heterogeneous ecosystems and have a high terrestrial influence. In this work we present a detailed estimation of the C accumulation fluxes at Las Tablas de Daimiel National Park (Mediterranean fluvial wetland located in central Spain) for the last 1000 years. The estimation is based in 70 cores, 15 of them (keys cores) have been selected for geochemical, isotopic, mineralogical, sedimentological, physical, pollen analyses and dating, the others have been used mainly in the correlation. We found a high variability in the annual accumulation fluxes (290-0, 1 g/m2/year for OC and 120-0 g/m2/year for IC) caused by natural (climate) and anthropogenic (draining, water overexploitation…) changes in the flooded surface of the wetland.

Climate Control of Spring Clear-Water Phase Development Through the Transfer of Energy and Mass to Lakes

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We sought to distinguish between pathways by which climate affects lake structure and function by using the clear-water phase (CWP) as a model system. We compared decade-long time series of water transparency, algal abundance and zooplankton density to identify the CWP in six polymictic lakes of the Northern Great Plains and to determine how energy and mass transfer interact in regulating lake structure. Analysis of ecosystem synchrony revealed that CWP timing was highly variable among lakes, but could be predicted from the rate of energy transfer from the atmosphere ($r^2 = 0.984$, $p = 0.0001$). CWP occurred when water overlying the sediments reached 16oC and