



Analysis of the wetland extend and seasonal cycle at a global scale using satellite observations from the visible to the microwave

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Wetlands cover only a small fraction of the land surface but they affect climate by modulating temperature and heat fluxes, storing water, increasing evaporation. They also play a major role in the biogeochemical cycle through production of trace gases: they are the largest methane source.

Estimation of the timing and extent of the flooded regions on a global basis, with a suite of satellite observations, including NDVI (AVHRR) and passive and active microwave observations (SSM/I and ERS scatterometer) has been developed. A clustering technique is used to merge the satellite observations and isolate the inundated areas. Within each inundated pixel, the fractional extent of the inundation is calculated from the passive signal, using the scatterometer response to parameterize the vegetation density.

Monthly mean extents are presented for several years, with a spatial resolution of $0.25^{\circ} \times 0.25^{\circ}$. The results are compared to existing maps and their relationship with satellite altimeter observations is analyzed. Combining the wetland extent with the changes in water height derived from the altimeter measurements, there is hope to estimate the volume of water stored in the wetlands.