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Linking Sentinel 3 data to precursor sensors to provide a long-term climate-quality data record.

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The OLCI sensors aboard Sentinels 3A and 3B will provide an unprecedented observation capability and an increased insight into the biogeochemical processes in the surface oceans. However, to maximise our understanding of long-term changes in response to climate forcing we need to tie this new data record to that provided by prior sensors. By linking the Sentinels to the existing 20 year record of ocean colour data we can begin to detect large-scale, climate-driven changes in global or regional phytoplankton abundance and the ocean carbon cycle. Here, we present the requirements and feasibility of incorporating OLCI data into an existing climate data record (Ocean-Colour Climate Change Initiative products), the initial results of applying to OLCI data a previously-tested methodology for merging such data streams, and examples of the benefits that a merged sensor archive has already begun to yield. Methodologies discussed will include inter-sensor bias correction, band-shifting, algorithm blending and uncertainty characterisation.