Towards a true aerosol-and-cloud retrieval scheme

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The Optimal Retrieval of Aerosol and Cloud (ORAC) - formally the Oxford-RAL Aerosol and Cloud retrieval - offers a framework that can provide consistent and well characterised properties of both aerosols and clouds from a range of imaging satellite instruments. Several practical issues stand in the way of achieving the potential of this combined scheme however; in particular the sometimes conflicting priorities and requirements of aerosol and cloud retrieval problems, and the question of the unambiguous identification of aerosol and cloud pixels.

This presentation will present recent developments made to the ORAC scheme for both aerosol and cloud, and detail how these are being integrated into a single retrieval framework. The implementation of a probabilistic method for pixel identification will also be presented, for both cloud detection and aerosol/cloud type selection. The method is based on Bayesian methods applied the optimal estimation retrieval output of ORAC and is particularly aimed at providing additional information in the so-called "twilight zone", where pixels can't be unambiguously identified as either aerosol or cloud and traditional cloud or aerosol products do not provide results.