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## Assimilating visible radiances to constrain aerosol properties in the ECMWF Integrated Forecast System.

**Gareth Thomas**<sup>1,2</sup>, Angela Benedetti<sup>3</sup>, Samuel Quesada Ruiz<sup>3</sup>, Julie Letertre-Danczak<sup>3</sup>, and Marco Matricardi<sup>3</sup>

<sup>1</sup>RAL Space, Rutherford Appleton Laboratory, Didcot, United Kingdom (gareth.thomas@stfc.ac.uk)

<sup>2</sup>National Centre for Earth Observation, Rutherford Appleton Laboratory, Didcot, United Kingdom

<sup>3</sup>European Centre for Medium Range Weather Forecasting, Reading, United Kingdom

The Aerosol Radiance Assimilation Study (ARAS) has created a new approach for the assimilation of visible/near-IR radiances into the ECMWF's Integrated Forecast System (IFS) for the constraining aerosol properties within the model. The capability is based on a new observation operator, based on the forward model used in the Optimal Retrieval of Aerosol and Cloud (ORAC) retrieval scheme, which predicts top-of-atmosphere radiances based on the model's aerosol field with sufficient accuracy while being computationally efficient enough to run in a operational analysis system such as that run at ECMWF. The system has been tested in the full IFS assimilation system, replacing the currently operational assimilation of MODIS AOD products, using MODIS radiances.

This presentation will give an overview of the new operator, show example results of its impact on the model output and discuss its merits and disadvantages compared to the AOD assimilation.