

## 4th workshop on assimilating satellite cloud and precipitation observations for NWP



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### **Cloud and precipitation assimilation from satellites: 20 years and 4 joint workshops**

*Monday, 3 February 2020 11:30 (40 minutes)*

With the introduction of improved data assimilation methods around the turn of the millenium, direct assimilation of cloud and precipitation observations became more feasible. Since then, ECMWF-JCSDA workshops have been held every 5 years to assess and progress the state of the art. This talk will overview past progress and introduce the current workshop and its key questions. These are: (1) the observing system, progress in operational all-sky assimilation from nowcasting to global weather forecasting, and the exploitation of a wider array of novel observations including cloud and precipitation lidar, lightning and passive sub-millimetre; (2) progress in cloud micro- and macro-physical modelling - to find out how the models can help constrain observation operators, and how much the observations can help better constrain the models; (3) progress in cloud and precipitation-capable observation operators, particularly the need to handle macrophysical details such as 3D effects and cloud overlap, and microphysical details including the shape, orientation and size distributions of hydrometeors; (4) improved methods for data assimilation, particularly as cloud and precipitation observations challenge many of the assumptions made in current operational systems, particularly the Gaussian and linear assumptions.

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