

EASA Workshop

Weather Information provided to Pilots

German Aviation Research Programme



Technologie für Flugverkehrsmanagement in großen Strukturen

Funded by



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Project Partner



Lufthansa



Objectives

- ➔ Provision of different MET Information in different technical systems for pre-tactical and tactical flight planning
- ➔ Validation
 - ➔ Technical integration
 - ➔ Application and benefit assessment of MET Information during trials

Technical Systems for Pre-tactical and Tactical Flight Planning

- **Pre-tactical Flight planning** – system for trajectory determination
MET Information are required as gridded data
- **Tactical Flight planning** – systems for presentation of weather phenomena
Pilot Advisory – „Mission Support“ and **Weather for Cockpit – EFB**



MET Information are required as objects for different thresholds for simple interpretation of weather situations

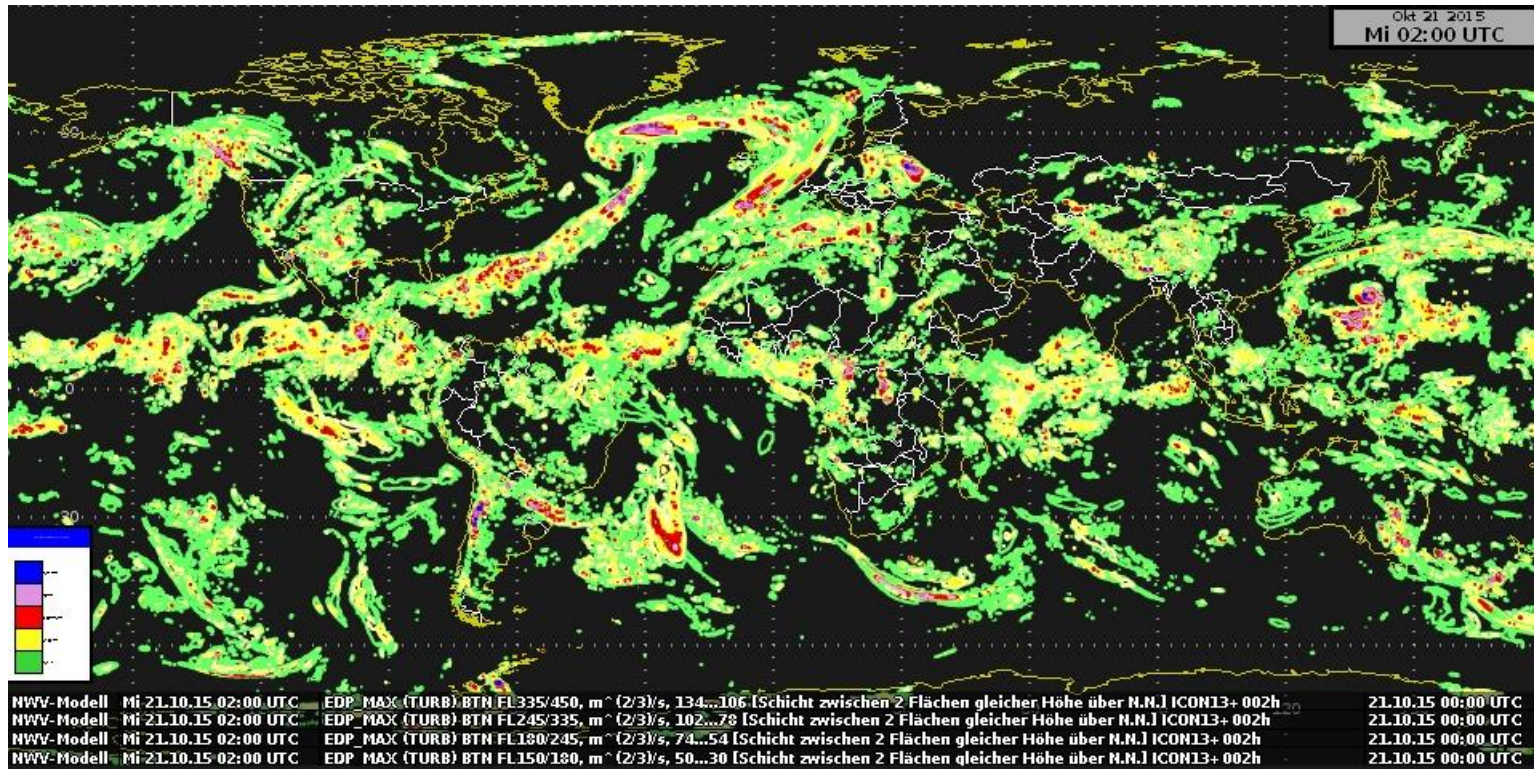
MET Information Provision

MET Parameter	Information	Application
Turbulence EDR: Global numerical weather prediction model NWP (ICON) up to + 36h forecast time	Gridded data (GRIB 2) Objects almost in IWXXM: referred to ICAO Annex 3 thresholds	Pre-tactical Tactical
Volcanic Ash Concentration: Global NWP (ICON) up to + 36h forecast time <i>as secondary source in addition to VAAC -> Risk Assessment</i>	Gridded data (GRIB2) Objects almost in IWXXM: referred to VAAC thresholds	Pre-tactical Tactical
Volcanic Ash areas: Satellite based detection + NowCasting up to 3 to 4h forecast time (VADUGS) <i>as secondary source in addition to VAAC</i>	Objects almost in IWXXM: VA detection yes / no / detection not possible	Tactical

Data formats: SWIM compliant (System Wide Information Management)

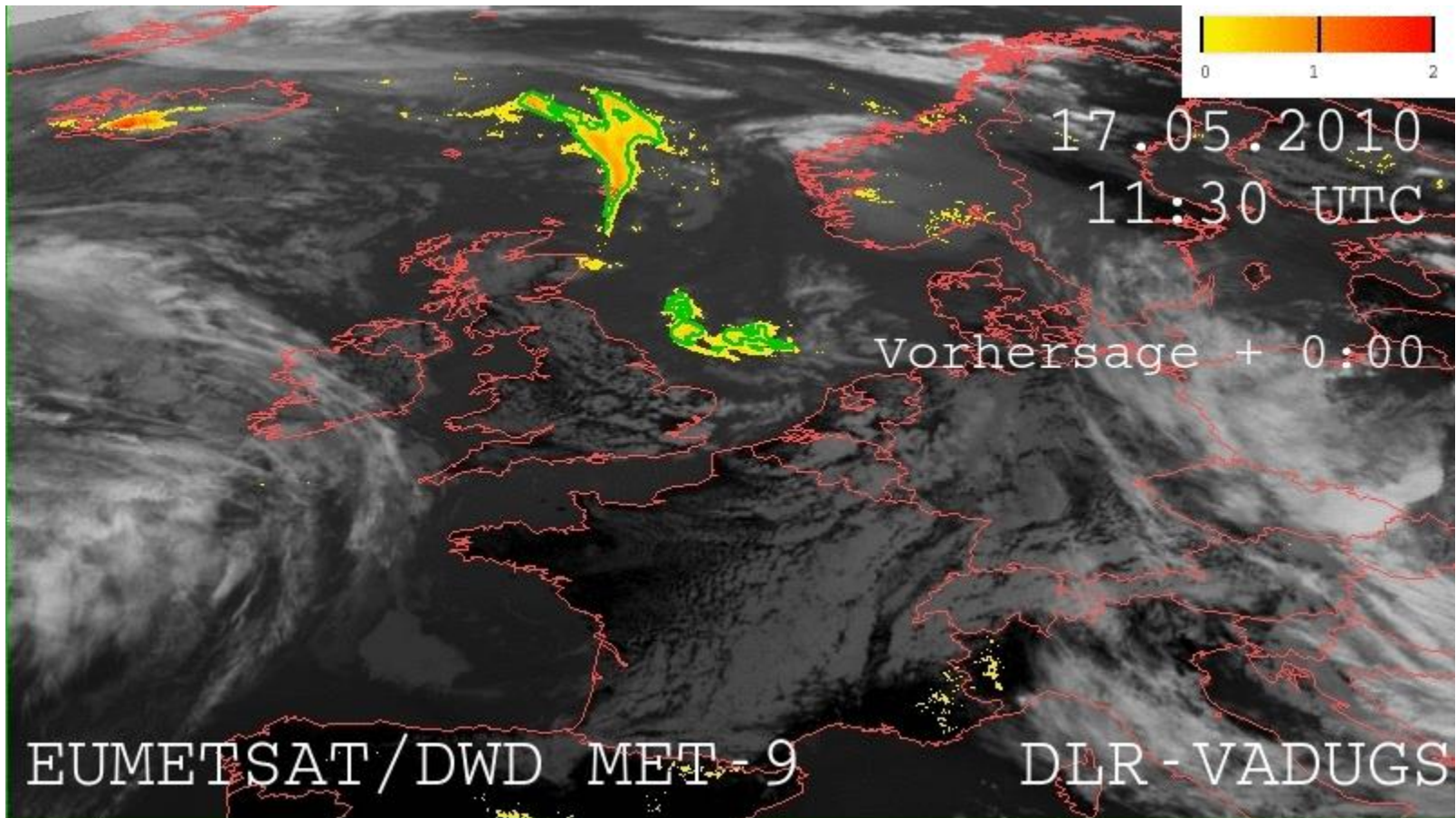
Data exchange: SWIM / Geo Web Services (WFS, WCS) in preparation

MET Information - Turbulence



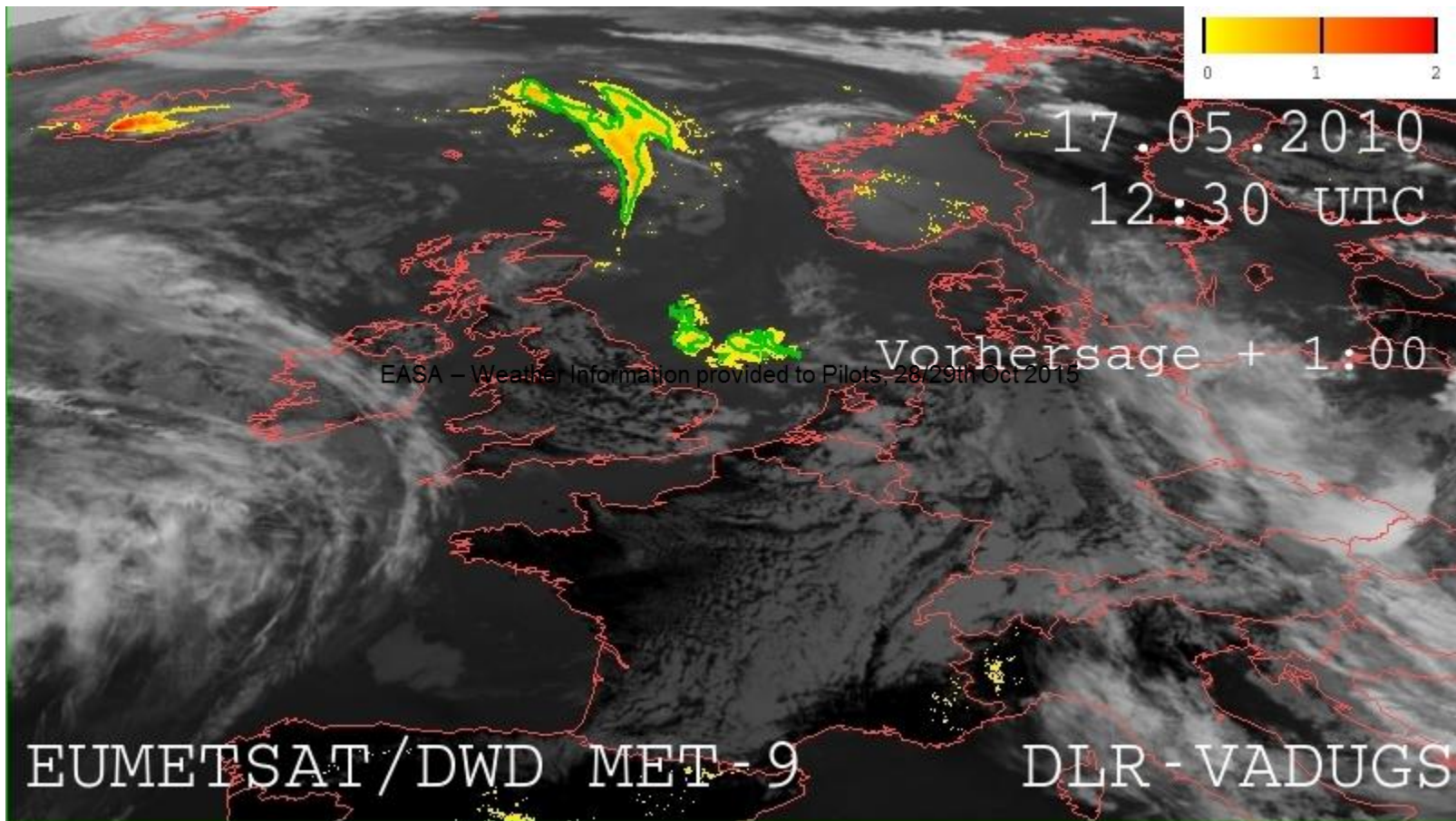
ICON forecast of EDR as example for FIR and UIR flight levels, 21th Oct 2015

MET Information – Volcanic Ash detection



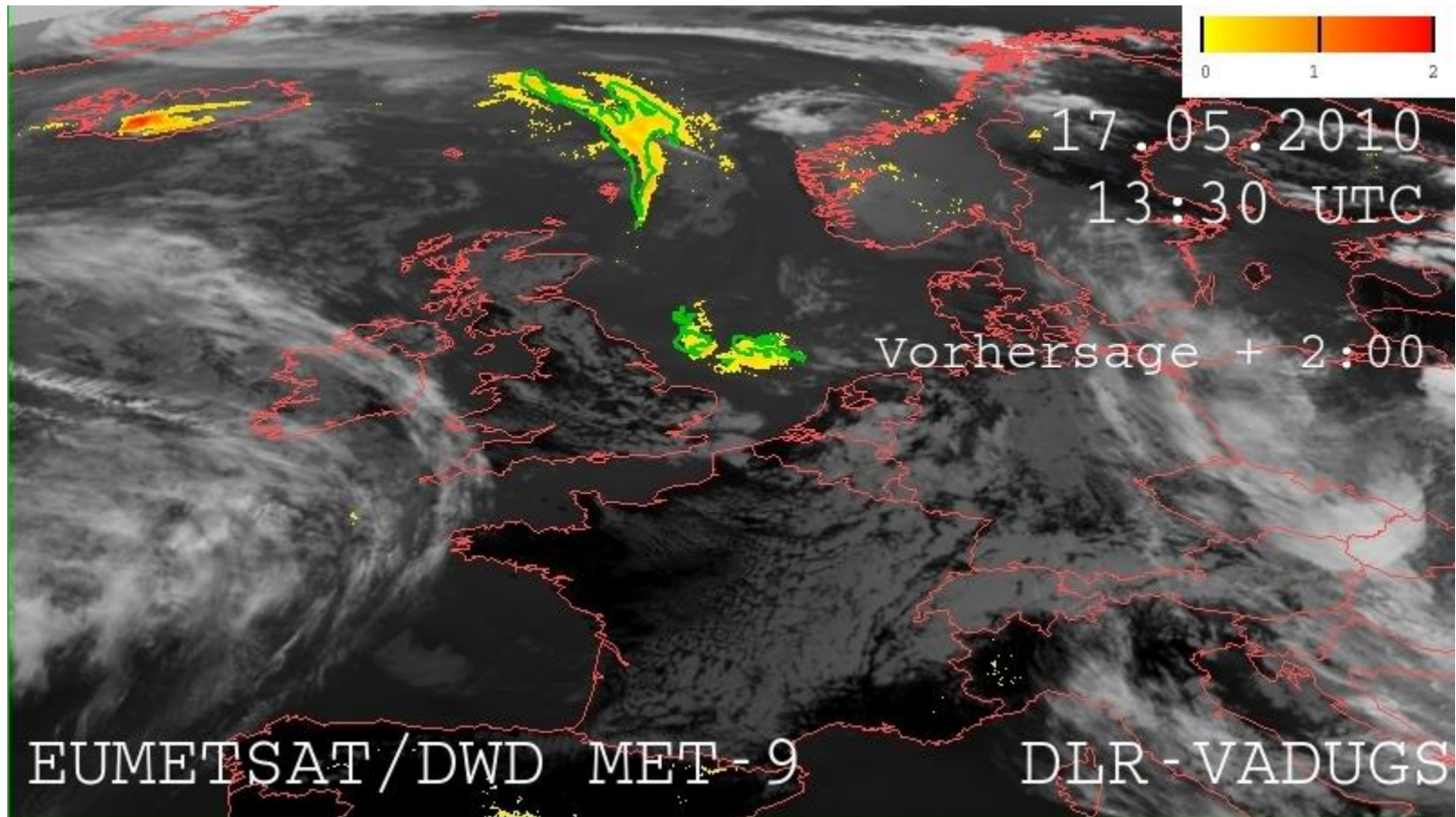
Volcanic Ash detection under consideration of Cirrus coverage based on
satellite approach VADUGS and NowCasting

MET Information – Volcanic Ash detection



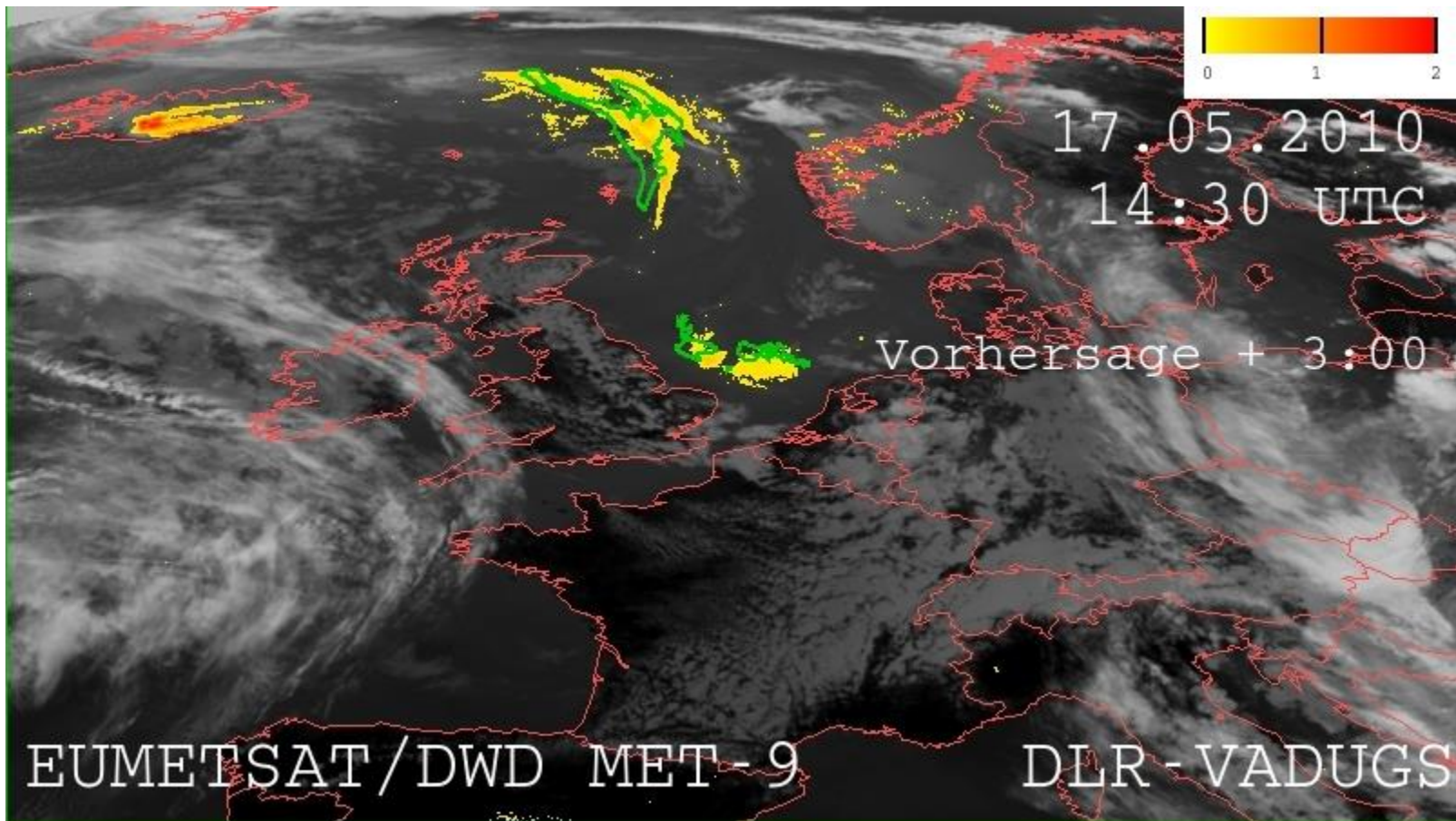
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MET Information – Volcanic Ash detection



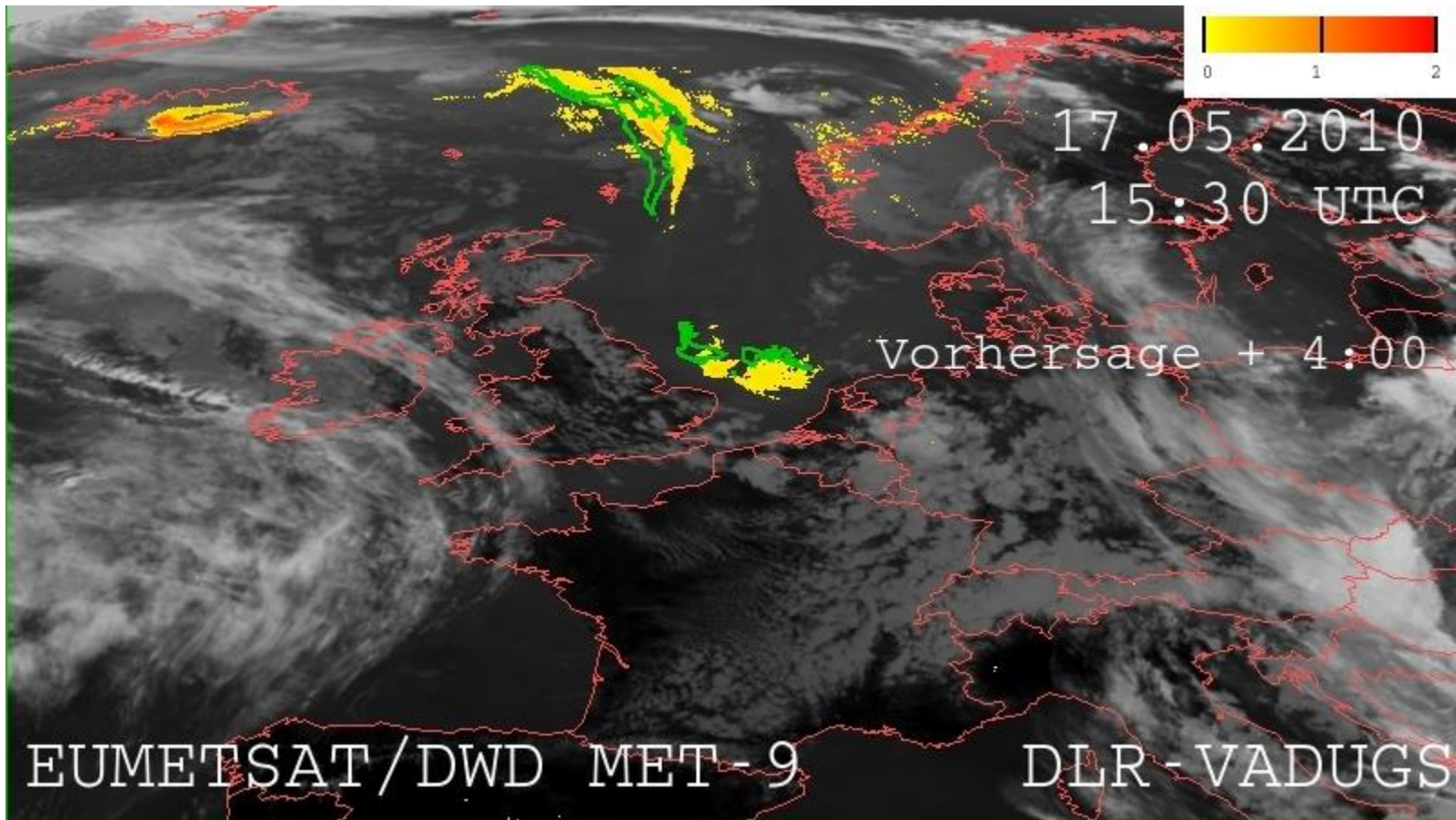
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MET Information – Volcanic Ash detection



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MET Information – Volcanic Ash detection



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Demand on Aircraft Based Observations

- ➔ Aircraft based observations are required for different issues and they are able to contribute to safety:
 - ➔ Forecast verification / quality assessment
 - ➔ Adaptation of threshold values
 - ➔ Assessment of actual forecasts
- ➔ It is planned to equip some LH aircrafts with NCAR software in order to measure EDR during TeFiS flight trials.

Demand on Support

- ➔ Extension of IWXXM / WXXM Weather Exchange Model in order to map turbulence, VA, icing, CB ...
- ➔ Regulation to support the collection of aircraft based observation over Europe

Contact data

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