



## Frostpoint hygrometer GDP progression (A3)

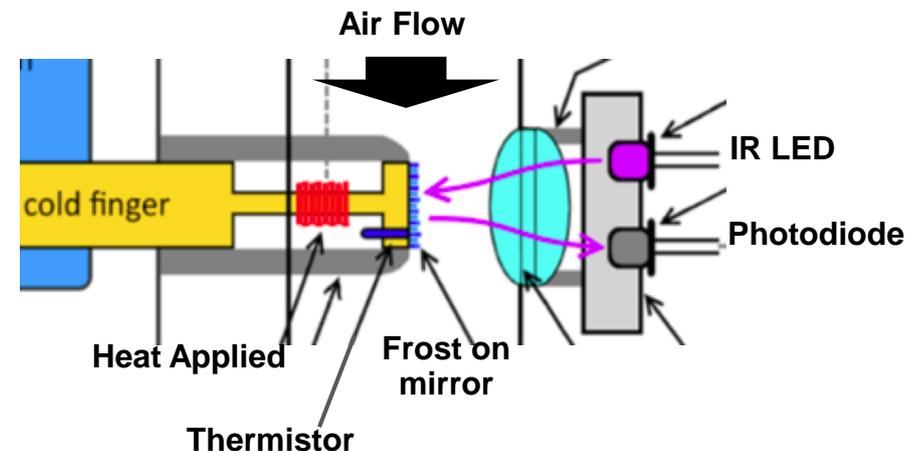
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## A3 Frostpoint Hygrometer GDP progression

- Set up data processor for chilled mirror techniques and consider the need for different processing / uncertainty estimation depending upon cooling technique and instrument configurations
- Milestones in the development of the Frostpoint Hygrometer GDP
- Institute processing based upon existing techniques. Evaluate the extent to which coolant techniques / choice of coolant and instrument configuration exert a control on the data and / or uncertainty
- Lead Centre, Holger Vömel, Poltera Yann, Takuji Sugidachi
  
- No progress, need to discuss in later agenda item how to progress

- Maintain a stable frost layer on the cold mirror by intermittently applying heat
- When stable, frost layer is in equilibrium with moisture in the air flowing by the mirror
- Direct measurement of the mirror (FP) temperature with a small calibrated thermistor
- Heater regulated by PID-controller



D. Hurst @ ICM-11

- Data processing is straightforward and well-defined
- Automated quality control of profile data (flagging) may be difficult
- Each FP model may operate differently (e.g., frost control logic, mirror clears)
- PID settings -> oscillations
  - Estimation of uncertainties for each FP model may be different
  - Same statistical method may not be appropriate for every model
  - Uncertainties of GDP must include uncertainties of radiosonde P and T measurements
  - Any systematic errors for new FP models (unknown) must be quantified and removed

(\*)From presentation D. Hurst @ ICM-11

- Small group of people with limited time available...
- Focus on uncertainty estimation
- Is the processing and uncertainty for FPH same as that for CFH?
- Which smoothing methods for the CFH/FPH are better, the gaussian filter or the golden point methods ?
- The data processing and uncertainty estimation must be objective. The goal is an automated quality control.

	Person in charge	Paper	Technical Document
CFH	Ruud ? Holger ? Yann ?	Vömel et al. 2016	Not yet
FPH	??	Hall et al. 2016	Not yet
SKYDEW	Takuji S.	Sugidachi et al. submitted	Not yet