

# Recent NPL activities of interest to CEOs

## WGCV 29

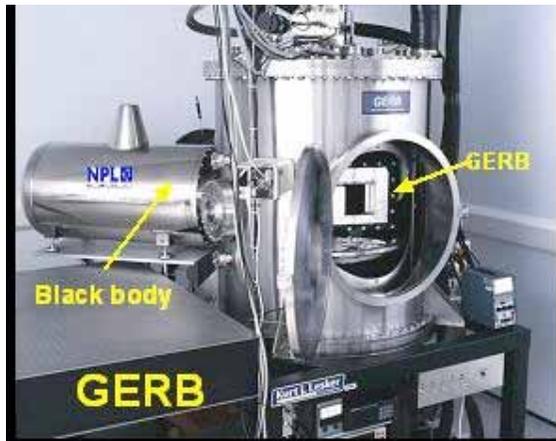
Oct 2008

Nigel Fox

# Summary

- Development of EO specific transfer standards and techniques
- “ of “best practise guidance
- Support for sensor calibration
- Consultancy based advice
- IVOS
- QA4EO!!!!

# GERB 3: calibration (Geo-stationary Earth Radiation Budget)



Support to Imperial college London for calibration of GERB 3

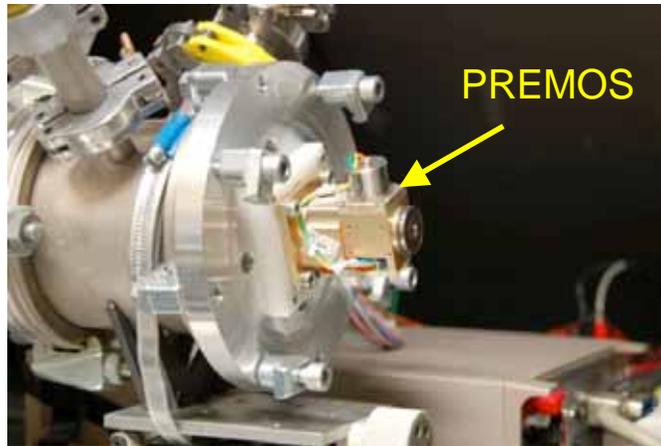
Black bodies for “total radiance”

TSARS (Transfer Standard Absolute Radiance Source) for solar reflected

Support to RAL for mirror reflectance

Also Earthcare

# PREMOS (WRC Davos) for PICARD (Total Solar Irradiance)

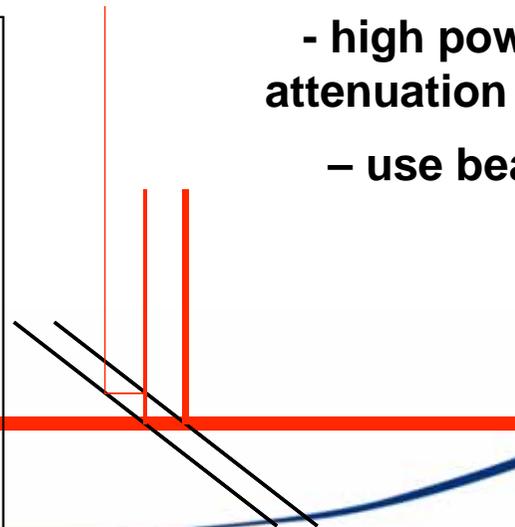
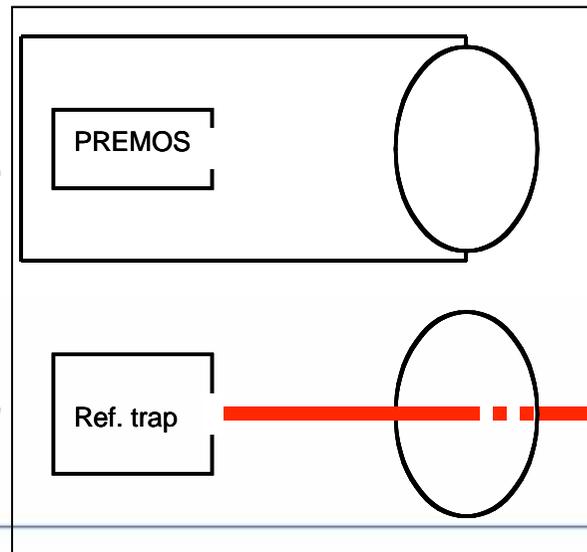


Mon. trap

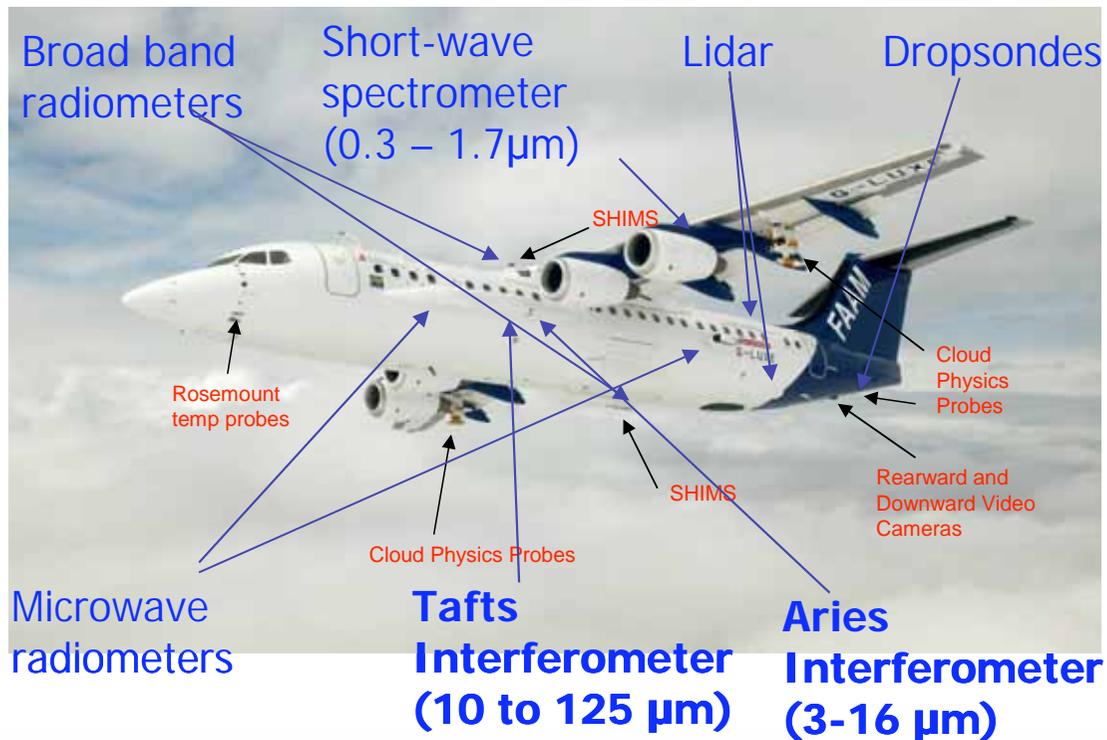
**Measurements made under vacuum accuracies <0.05%**

**- high power ~50 mw needs attenuation process**

**- use beamsplitter 3<sup>rd</sup> reflectance**



# CAVIAR: Continuum Absorption\* of Visible and Infrared Radiation and its Atmospheric Relevance (\* by WATER)



NPL

Calibration

+ ground based FT

Collaboration with consortium UK universities led by Reading and Met office

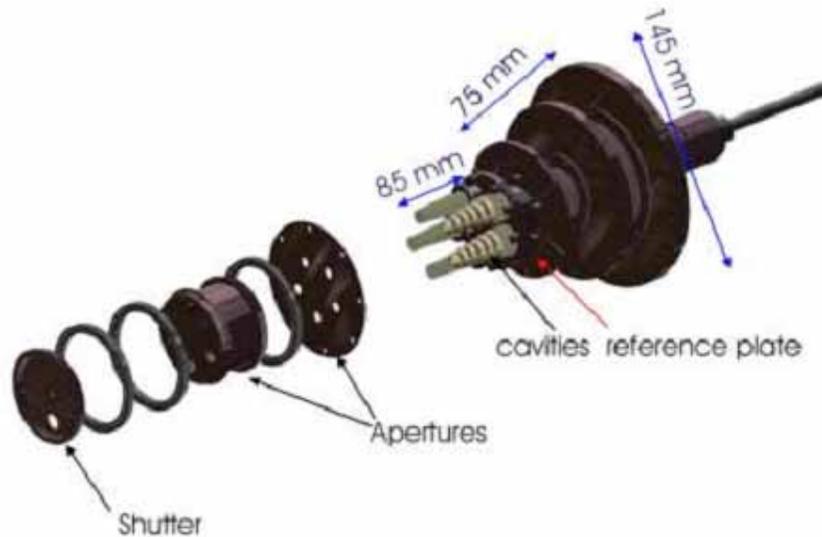
## TRUTHS: Cryogenic Solar Absolute Radiometer (CSAR)

CSAR – measures TSI on ground to replace WRR of WMO

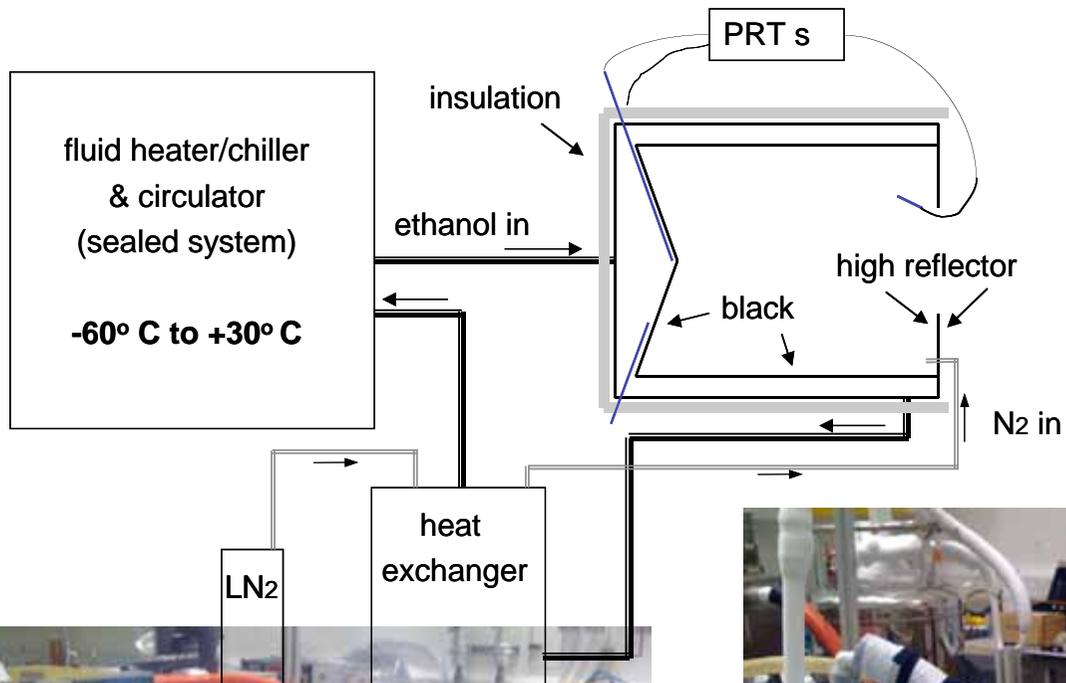
- Collaboration with PMOD/WRC Davos and MSSL
- Designed for space flight as primary standard of TRUTHS
- Mechanical and thermal FE analysis now complete

Video of TRUTHS concept on “you Tube”:

<http://www.youtube.com/watch?v=TMMYObOjBI4>



# Calibration standard Black body



210 K to 310 K

Non-vacuum

~ 0.2 % at 300 K

Exit port up to 60 mm diam



TAFTS

CAVIAR

# First evaluation of Tuz Golu: Aug 18-24 2008

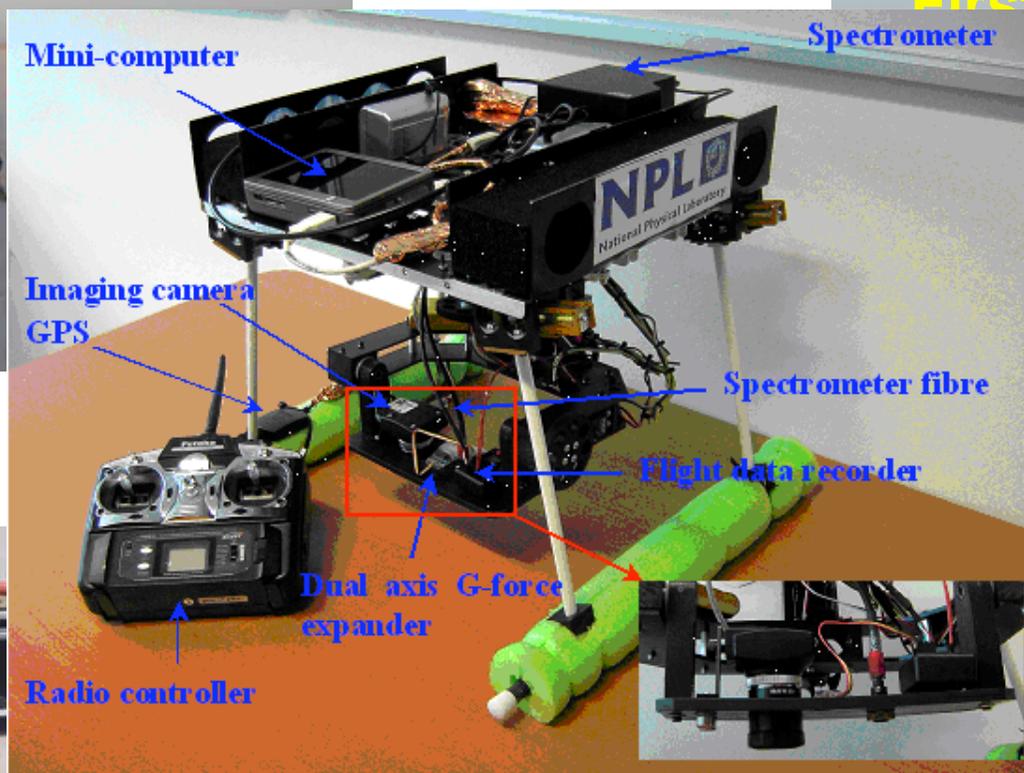


Photos: Courtesy DMCii



# New techniques and instrumentation (1)

## NPL Helicopter



First



and flight!!



## New techniques and instrumentation (2)



NPL Gonio-Radiometric Absolute Spectrometer System (GRASS), measurements of both surface BRDF, but also angular sky radiance.