

Challenges for Exploitation of the Arctic Polar Region

Introduction

Mick Johnson
CEOI Director

mick.johnson@astrium.eads.net
www.ceoi.ac.uk

Welcome & CEOI Objectives - Mick Johnson (CEOI)

Satellite Applications Catapult Objectives - Paul Febvre (SatApp Catapult)

Arctic Opportunities and Risks - Keeping the Licence to Operate

- Dougal Goodman (CEO – The Foundation for Science and Technology)

Application of EO to the Oil & Gas Industry in the Arctic

- Kim Partington (Polar Imaging)

Challenges from Polar View (TBC) - Andrew Fleming (BAS)

Coffee break

Space Missions Serving the Arctic - Rob Scott (CEOI)

Orbits for Polar EO, Navigation and Comms - Malcolm Macdonald (Strathclyde University)

Satellite Navigation Issues for the High Arctic - Cathryn Mitchell (University of Bath)

Lunch

Communications in the High Arctic - Graham Huggins (Astrium)

Changes in the Arctic Ice Cover - Andy Shepherd (University of Leeds)

Breakout sessions

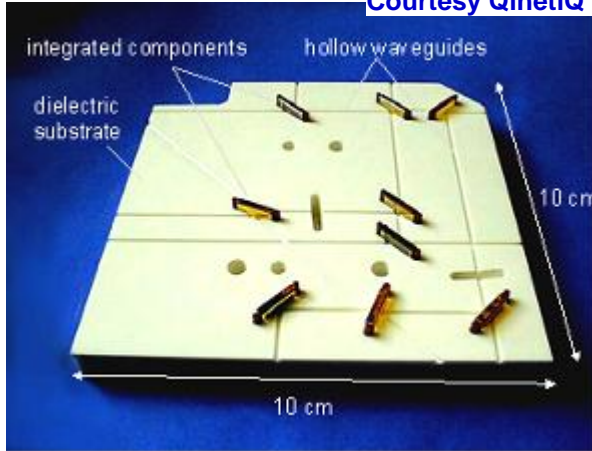
Plenary

- “The Arctic looks likely to be a big business opportunity; research estimates suggest that it is likely to attract more than £64bn of investments over the next decade”
- To consider the implications for future EO and other space missions of this important potential market area.

What is the CEOI?

- UK Space Agency initiative ‘to boost UK capability and remain at the forefront of EO technology for space’.
- Launched in 2007 by NERC and DIUS/TSB
 - parallel industry investment, total approx £1.5M pa
- Programme focus on:
 - development of new EO instrumentation and technologies
 - horizon scanning and knowledge exchange
 - building highly capable academia/industry partnerships
 - training for next generation scientists and technologists
- Partnership led by Astrium with QinetiQ, STFC/RAL and University of Leicester

LIDAR technologies in 1.5-2.5 μm range for CO₂ measurement
 Courtesy QinetiQ



Integrated Optics
Hollow Waveguide
 QinetiQ with Uni. of
Leicester and CTCD

Courtesy SSTL

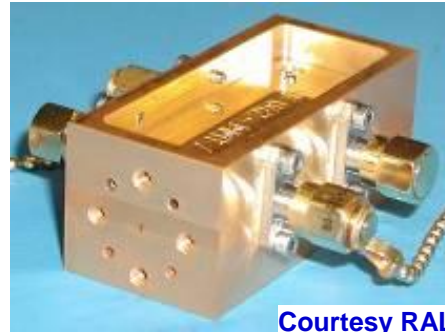


Spectrometers and detectors
in UV/Vis/NIR for atmospheric
composition measurement

STFC/RAL
with Astrium

Univ. of
Leicester
with SSTL
and Astrium

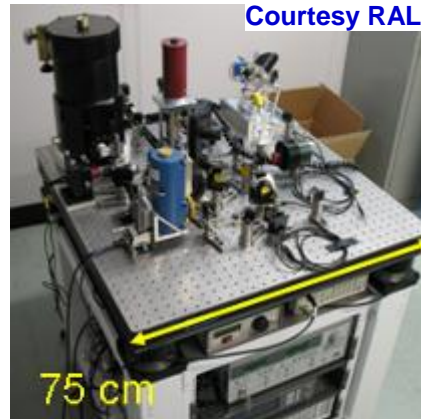
Millimetre wave radiometric
sounding of the atmosphere
 STFC/RAL with Astrium and QUB



Courtesy RAL

SHIRM 360 GHz image
separator mixer using Schottky
diode technology

Courtesy RAL



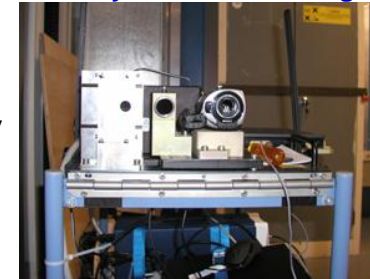
Laser heterodyne sounding
in 4-150 μm range

GNSS Reflectometry



SSTL with NOCS, Univ. of
Surrey & Univ. of Bath

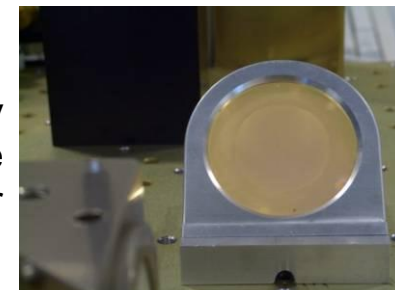
Courtesy Univ. of Edinburgh



Multispectral
Canopy
LiDAR

Univ. of Edinburgh
with Selex Galileo

Queens University Belfast



Frequency
Selective
Surface Filter

- EO Technology Strategy Workshop (10th July, London)
 - Update on Future Missions
 - Review of CEOI Technology Roadmaps
 - Development of an EO technology strategy
- For further information: mick.johnson@astrium.eads.net
- To register: emily.budge@astrium.eads.net