



# NCEO and CEOI SCIENCE VIRTUAL CONFERENCE 24 and 25 June 2020



## Wednesday 24 June 2020: am session - NCEO

0900 **SESSION 1 - Welcome and overview - John Remedios (NCEO) and Mick Johnson (CEOI)**

0915 **Plenary 1: CHAIR - Paul Palmer (NCEO)**

**Mary Langsdale (KCL):** Retrieval and evaluation of land surface temperature and emissivity using airborne, field and laboratory hyperspectral instrumentation

**Stefano Ciavatta (PML):** Ocean biogeochemistry reanalysis: a successful NCEO story

**Maggie Marvin (Edinburgh):** Seasonal impacts of biomass burning on ozone air quality across Southeast Asia

**Briony Turner (Space4Climate, Reading):** The making of a network revealed –matchmaking with purpose pre, during and post Covid19

1130 **Parallel session 1 - Chair: Alison Fowler (Reading)**

**Parallel session 2 - Chair: Jose Gomez-Dans (UCL)**

**Parallel session 3 - Chair: Rob Parker (Leicester)**

### Data assimilation and uses

**Keith Haines (Reading) -** An ocean smoother for improve ocean heat and salt content analysis

**Martyn Chipperfield (Leeds) -** Identifying the global sources and impacts of new CFC-11 emissions

**Amos Lawless (Reading) -** The role of cross-domain error correlations in strongly coupled 4D-Var atmosphere-ocean data assimilation

**Ewan Pinnington (Reading) -** Improving soil moisture prediction of a land surface model through data assimilation

**Javier Amezcua (Reading) -** Data assimilation for tracking and predicting Covid19 epidemic

**Jozef Skakala (PML) -** Multi-platform assimilation of physical and biogeochemical variables on the North-West Shelf

### New EO science missions, data methods and systems

**Phil Wilkes (UCL) -** A remote sensing view of urban forest

**Joao Carreiras (Sheffield) -** Improved characterisation of vegetation height from lidar observations: implications for above-ground biomass retrieval from space

**Jerome Woodwark (Edinburgh) -** GRAvity observations by vertical laser ranging: a new mission concept

**Alex Webb (Leicester) -** Regeneration of CO2 Satellite Column Data tailored to an Atmospheric Inversion Scheme

**Gareth Thomas (RAL) -** Assimilating visible radiances to constrain aerosol properties in the ECMWF Integrated Forecast System: The ARAS project

**Mike Perry (Leicester) -** Land Surface Temperature Monitoring LSTM mission

### Global & regional processes, & model evaluation.

**Josh Talib (CEH/NCEO) -** Land surface feedbacks associated with intraseasonal rainfall variability

**Ranjini Swaminathan (Reading) -** Climate and Earth System Change at different levels of global mean warming

**Sandip Dhomse (Leeds) -** Evaluation of UKESM stratospheric trace gases and aerosol using satellite datasets

**Matilda Pimlott (Leeds) -** Investigating the global OH radical distribution using simplified steady state approximations

**Rocio Barrio Guillo (Leicester) -** Methane retrieval over anthropogenic point sources using Hyperspectral Remote Sensing

**Giorgio Dall'Olmo (PML) -** Ocean carbon pools and fluxes: from observations to process understanding

1300 Brief summary from the Chair

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## Wednesday 24 June 2020: pm session - CEOI

1345 **Session 2 - Introduction and Keynote Speaker**

**CHAIR: Chris Brownsword (CEOI)**

**Keynote speaker: Prof Kai Bongs**

**(UK National Quantum Technology Hub for Sensors & Metrology)**

Quantum Technology for a Future Gravity Mission

**Chris Brownsword (CEOI) - Introduction to Technology Projects**

**Keith Barnes (Leonardo MW Ltd) - Leonardo MW infrared detector developments - Dark Carb Study**

**Dave Smith (STFC RAL Space) - Next Generation Infrared Calibration Sources (NGenIRS)**

**Neil Bowles (Oxford) - The Compact Imaging Infrared Radiometer (CIIR) Programme**

**Mitchell Kenney (Glasgow) - Nanostructured Ultra-Lightweight Lenses for Earth Observation**

1455 Break

1515 **Daniel Oi (Strathclyde) - Compact Multispectral Imager for Nanosatellites**

**Benjamin Taylor (Surrey Space Centre) - Fast Slew Gimbaled Optics for Real-time EO**

**Owen Hawkins (Earth-i Limited) - OVERPaSS: On-board VidEo Rapid ProceSSing**

**Steve Greenland (Craft Prospect) - Autonomy Assurance for Small Earth Observation Missions**

**Peter Huggard (STFC RAL Space) - GRaCE: G-band Radar for Cloud Evaluation**

**Manju Henry (STFC RAL Space) - Spectroscopic-system for EnviRonmental MONitoring (SERMON)**

**Peter Hargrave (Cardiff) - Ultra-Lightweight Metamaterial Optics For Earth Observation Applications (META-TEL)**

**Chris Thomas (Cambridge) - Advanced Filterbank Spectrometer Technology for Hyperspectral mm-Wave Atmospheric Sounding**

**Nick Ridler (National Physical Laboratory) - Polymer-based 3D Printing for Atmospheric science - multi-channel mm sounder (3DPAMS)**

1625 **Tony Holt (In-Space Missions Ltd) - Babel PD4 – Software defined radio for sensing microwave emissions**

**Summary from Chris Brownsword**

## Thursday 25 June 2020: am session - CEOI

### Session 3 – Welcome from Mick Johnson CEOI

**CHAIR: Jolyon Reburn (STFC) and Richard Bantges (Imperial)**

0920 **Part 1: Introduction to session**

**Mick Johnson (CEOI)** - Outline of the ESA earth Explorer 11 Call

**Part 2: Update on Missions led from UK**

**Stephen Hobbs (Cranfield)** - EE10 Candidate: Hydro-Terra

**Helen Brindley (Imperial)** - EE9: FORUM

**Part 3: EE11 Mission Proposals**

**Anthony Illingworth (Reading)** - WIVERN

**Christine Gommenginger (NOC)** - SEASTAR

1030 Break

1100 **Daniel Gerber (RAL)** - LOCUS

**Kees van den Doel (Adrok Ltd)** - ADROK

**Part 4: Other missions**

**Nigel Fox (NPL)** - TRUTHS

**Martin Unwin (SSTL)** - ESA Scout Mission Proposal: HydroGNSS

**Andrew Haslehurst (SSTL)** - Payloads for SmallSat Missions: Science on small platforms - ESA commissioned study

**Marton Kiss-Toth (Teledyne e2v) and Mike Salter (STFC – RAL Space)** - Future EO: Concept for a Cold Atom Gravity Explorer (CAGE) Mission

**Summary from Mick Johnson**

1230 Lunch break

# Thursday 25 June 2020: pm session - NCEO

## Session 3

### 1315 Plenary 2: CHAIR - Martin Wooster (NCEO)

**Hartmut Boesch (Leicester):** Monitoring Air Quality changes since the Coronavirus outbreak using satellites

**Philip Lewis (UCL):** EO finally delivers on crop monitoring

**Tristan Quaife (Reading):** Data Assimilation with JULES

**Ed Gryspeerdt (Imperial):** Using satellites and ships to understand clouds and climate

1500 Break

### 1515 Parallel session 1 - Chair - Tim Trent (Leicester)

**Climate urgency: Climate data records, predictions and their exploitation**

**Darren Ghent (Leicester) -** Towards first global climate data records for land surface temperature

**Steve Groom (PML) -** Latest developments in the ESA Ocean Colour CCI: version 5

**Adam Povey (Oxford) -** Making the old new again: Adapting the ORAC retrieval to SLSTR

**Jose Gómez-Dans (UCL) -** A 20-year record of global fire impacts derived from optical satellite data

**Karn Vohra (Birmingham) -** Air quality trends from long-term Earth observations over tropical megacities of the future

### Parallel session 2 - Chair - Dan Clewley – (PML)

**Progress in EO science, infrastructure and applications**

**Robbie Ramsay (FSF Edinburgh) -** NERC Field Spectroscopy Facility's new GHG monitoring network

**Kelvin Choi (Imperial) -** Implications of air quality change over China during COVID-19 lockdown for solar energy generation from satellite

**Victoria Bennett (or her nominee) -** JASMIN Notebooks for NCEO science

**Anu Dudhia (Oxford) -** The reference forward model (RFM)

**Dan Clewley (PML) -** NEODAAS services and product developments inc MAGEO

### Parallel session 3 - Chair - Svetlana Zolotikova (Leicester)

**Working internationally (ODA, GEO/CEOS, collaborations and networks, "international" studies and publications).**

**Daniel Fisher (KCL) -** Enhanced night-time peat fire detection and phase assignment over SE Asia from Himawari-8

**Pedro Rodriguez Veiga (Leicester) -** Mapping aboveground biomass of Brazilian savannah (Cerrado)

**Richard Siddans (RAL) -** Observations of the 2019-20 Australian Fires using RAL/NCEO near-real time data.

**Mat Disney (UCL) -** Improved forest carbon estimation: Cal/val of new missions, improving uncertainty

**Neil Humpage (Leicester) -** Greenhouse gas column observations from a portable spectrometer in tropical Africa

1630 Brief summary from the Chair

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Please note: All timings and programme details are subject to change