

# Space4Climate July 2017 meeting MINUTES

Friday 7<sup>th</sup> July 2017, 10:00 – 14.00

Meeting Room 1&2, [Novotel Reading Centre](#), 25b Friar Street, Reading, RG1 1DP

Event chair - Beth Greenaway, UKSA

Present:

Beth Greenaway (UKSA), Jo Ansell (IEA), Debbie Clifford (IEA), Briony Turner (IEA), Hartmut Boesch (University of Leicester), Richard Brook (Space growth partnership Consultant), Geoff Buswell (TVUK), John Remedios (NCEO), Rory Donnelly (PML) Ben Calton (PML) Sarah Callaghan (STFC (CEDA) & NERC) Barry Latter (STFC), Andrew Groom (CGI), Lee Boland (consultant), Siobhan Browne (BEIS)

Apologies:

Stewart Turner (Met Office) Claire MacIntosh (NCEO) Zof Stott (NCEO), Andrea Sharpe (NERC)

## 1. Welcome, partner updates and review of previous minutes

The previous minutes were signed off and reviewed, no actions remaining with the exception of the below:

**ACTION 07/07/2017-01: John Remedios to share Royal Society “from satellite to soils” June 2016 meeting report.**

Beth Greenaway welcomed the group and confirmed the new group name of Space4Climate. Beth explained that the group is now at an exciting new junction with the appointment of Briony Turner as Climate Services Development Manager to galvanise the actions and move us forward to open up the climate markets and ensure we have the end-to-end system in place.

The group took time to introduce themselves and provide short partner updates. The Team focused on common and collaborative working projects.

## 2. Wider landscape Update

Beth observed that the UK is doing worldwide and world-class work and we are on the trail of breaking our world class data into market.

The new Chief Executive of the UK Space Agency, Graham Turnock started on 1st April 2017. Graham and the Agency value partner input and working collaboratively.

In December 2016 UK became the lead funder of the ESA Earth Observation programmes, investing over £280m to secure UK leadership of EO satellite enabled environmental science, applications and services. There are 4 key programmes which will all have calls for participation associated with them.

Regarding the EOEP5 programme; of note to this group is the Block 4 monies for science and applications.

The Climate Change Initiative – of interest to many in the group  
InCubed a new programme to stimulate investment in industry.

There has been further UK contribution into the new ESA programme “Investing in Industrial Innovation” (InCubed). The programme is similar to ARTES, which is 50% funded from ESA and 50% funded by industry. It is mostly upstream, to help industry develop the Earth observation satellite technology for commercial markets, but can be anything from building kit, to data processing to enable a market. Incubed will be launched 6<sup>th</sup> Sep from Harwell.

There is been positive news on the MicroCarb bilateral work. UKSA signed a mission-partnering agreement with France (CNES) in April. Launching in 2020, MicroCarb will enable the UK Space Agency and CNES to pave the way for a longer term operational system in response to the Paris Agreement. The significant benefit to the UK is the opportunity to be first to market when the data comes down. Space4Climate group should be ready to target that data as soon as it arrives.

UKSA is working on a new EO vision and implementation plan. The top 5 priorities are

1. Negotiating a new relationship with Copernicus following the Brexit vote.
2. ESA
3. Comms
4. Programmes
5. Education and skills

Climate activities and market fit into all priority areas. Regarding Copernicus the UK remains heavily involved with the very active programme which now has a heavy focus on phase 2, the expansion of the Sentinels (7, 8, 9 & 10) including a sentinel CO2 monitoring system. There is also discussion around the evolution of sentinels 1-6.

To conclude Beth highlighted that climate, climate markets and climate quality are still at the top of the UKSA agenda.

### **3. Introduction to Briony Turner**

Briony Turner introduced herself to the group and spoke about how she sees the Space4Climate group moving forwards. Briony spoke about how the current climate of uncertainty provides opportunities to advance domestic growth of the sector and entice domestic and international interest in British providers. Briony recently spoke at the Chartered Institute of Building Services Resilient Cities group AGM about Space4Climate and there was a lot of interest generated. Moving forward Briony asked the group to help equip her with demonstrators that can be presented at trade and industry meetings.

**ACTION 07/07/2017-02: ALL to contact Briony Turner if they have an application example that would make a suitable demonstrator for presentations to non-space sector trade and industry meetings**

### **4. Partner updates**

**ACTION 07/07/2017-03: Briony Turner to contact Adrian and Stewart (Met Office) to see if there is an update to circulate.**

Sarah Callaghan spoke about Dodona, a NERC programme to release data into industry and make environmental data easier to use for industry. There has been discussion around building a portal but the fine aspects are not yet confirmed. Possibly an open call.

**ACTION 07/07/2017-04: Please direct any questions to Sarah Callaghan who will keep the group updated as details become confirmed.**

Debbie Clifford raised the Horizon2020 project NextGEOSS to see whether the NERC portal is being considered with GEO/GEOSS in mind. Specific points of interest (for IEA) are identifying pain points in finding EO data and a gap analysis on why portals do not get used effectively.

**ACTION 07/07/2017-05: Debbie to speak to Sarah directly with reference to the above.**

#### **5. Training update – Debbie Clifford**

Debbie confirmed that there has been a change of branding from CDSSG to Space4Climate including new email address: [s4c@lists.reading.ac.uk](mailto:s4c@lists.reading.ac.uk) there will be an auto divert from the old address. There will be a refresh of the website over the next 6 – 9 months.

**ACTION 07/07/2017-06: ALL, if there is resource we can provide, feedback or data you would like included for the website please speak to Briony.**

The last financial year target for training courses has been completed with 2 new training courses, 'Decoding climate data from space' and 'A climate demonstrator in a day' which showed an accelerated process of an IEA demonstrator using Panoply.

The courses were attended by members of both academia and industry and generated positive feedback. The courses can be run again if there is future interest.

In mid-September there will be a NextGEOSS training day on EO for disaster risk reduction and user feedback. Followed in October by a repeat of the Software development for environmental scientists' course.

The IEA MOOC 'Big Data and the Environment' is in progress, planned to be completed in the autumn. If you require any further information please ask Debbie.

**ACTION 07/07/2017-07: Debbie to circulate the dates.**

The group discussed whether there was an opportunity to subsidise or charge for future course and the potential for training could become a market area for the group. This could include both outside of the UK courses and courses being packaged and taken to industry for CPD days.

Beth requested that course attendees are contacted 6 months post course and asked whether they are using the data? This would also build up a database and steer for the future courses.

Andrew Groom asked whether there is an opportunity to offer an extension course for ongoing development or to take the programme further after the 1-day course? There is a possibility for the introduction course to be free followed by charging for more in depth follow on courses.

**ACTION 07/07/2017-08: Briony Turner to follow up on the two questions raised above.**

#### **6. Update on Space Growth Partnership and Sector Deal – Richard Brook presentation**

Richard Brook set out this underpinning context for the Space Growth Partnership's (SGP) current activities. The Space Innovation and Growth Strategy (IGS), formed in 2009, brings together a partnership of industry, UK Space Agency, Satellite Applications Catapult, Innovate UK, Knowledge

Transfer Network (KTN) and academia. The original strategy target still stands of a requirement to grow the UK's share of the global space market to 10% by 2030, creating potential revenues of £40bn p.a. Climate services is one of the application markets identified within the strategy. The primary role of the Space Growth Partnership is to propose, agree and implement, on behalf of the UK's Space Sector, a Sector Deal as part of the Government's Industrial Strategy, focused on attaining the 10% target. A priority work stream for the SGP is to grow export performance and identify how we bring more investment into the UK to create this growth.

An Industrial Strategy Challenge Fund has been created to provide funding and support to UK businesses and researchers, part of the government's £4.7 billion increase in research and development over the next 4 years. One of the six key areas of focus of the fund is "satellites and space technology". New initiatives from the SGP need to be closely aligned with the challenge fund where possible.

Regional critical mass structures will be set up. Some of the Challenge Fund activities may be executed in these clusters but the setting up of a cluster is likely to require multiple strands of finance from a variety of sources.

SGP is constructing a Sector deal to take to Government. The current draft has 4 main headlines:

- **New services**, exploitation of data and capability of network into markets (communities of interest such as S4C – a multi-stakeholder group tackling a specific problem). S4C is the most advanced group within these communities of interest.
- **Regulations**
- Setting up **national and global programmes** in a post Brexit environment
- **Incubation, investment and entrepreneurial capability.**

Within the Sector deal for the Space sector, EO appears in 8 other markets such as Agri-tech. Sectors that have an EO requirement are being reviewed and prioritised. The Sector deal will include a request for some form of "Communities of Interest" (COIs) that represent these prioritised groupings, able to identify opportunities and barriers to unlocking market growth. There will be a request for a form of seed funding for the COIs. Whilst the COIs are expected to commence next year, in the interim there will be pilot activities, for which S4C activities could be part of, and, or provide learning from to inform COI development.

#### **Discussion:**

Beth Greenaway raised the question of, "What funding is required to keep the communities of interest going and how this group can influence this?"

Richard Brook explained that a 2 page template is required to submit an idea. Telespazio are submitting an idea. CGI are also working on a submission. The guidelines for communities of interest are being produced. There is ongoing discussion on the possibility of funding for pilot activities but this has not yet been secured. There would be a request in the Sector deal to fund the communities of interest going forward. Whilst S4C is not a community of interest, it is being discussed that as a ready-made group of experts S4C could be a great group to engage with and that it could be a good group to pilot COI processes and procedures.

John Remedios confirmed that Research Councils and Innovate UK did recently run a round of engagement gathering input from industry and the UK research base on how this cross-disciplinary fund can best support UK industries and science base on tackling the six key challenges.

**ACTION 07/07/2017-09: Briony Turner to meet with Lee Boland and find out more about how S4C could be involved with the Col work stream**

**ACTION 07/07/2017-10: Communication channels to be kept open and public workshops to be advertised within the group.**

**ACTION 07/07/2017-11: Briony to send out a regular reminder for partner updates. People need only respond if they have an update.**

**ACTION 07/07/2017-12: Richard to try and provide some further information on SGP and the Sector Deal and updates that are sharable to the group.**

#### **7. Data and Technology - CDS Zone – Sarah Callaghan**

Sarah explained that the CDS Zone is separately funded and governed to the rest of JASMIN. They are currently focusing on procuring extra storage solutions.

UKSA will need evidence of use that the zone is being used to continue funding. It needs to demonstrate it is value for money. So far C3S SST are the only group that have claimed their storage application.

**ACTION 07/07/2017-13: Groups using or planning to use CDS zone should contact Sarah so their allocation can be tagged**

Ben spoke about the Climate data from space dashboard and how it is for users from outside the community to see what data is available and how to find it.

There will be a data visualisation tool to bridge the gap between data producers and industry that are looking to use the data. Several bits of software are being used to build the foundation; some within the JASMIN managed cloud and some outside. Currently in month 4 of an 18 month project. At the end of the 18months the software will be handed over to CEDA. The evidence of use of the zone will come through the dashboard. The 18month timescale reflects the development of the dashboard not the project in its entirety.

**ACTION 07/07/2017-14: Sarah - Offline discussion to be had to discuss how we measure the value that is being generated and the model of the service for the new C3S calls.**

**ACTION 07/07/2017-15: Beth - Geoff Busswell requires letter of authorisation to use the CDS zone until 2021.**

**ACTION 07/07/2017-15: Briony to lead a telecom on the datasets.**

## 8. CCI+ and C3S - John Remedios

John confirmed that a new set of essential climate variable projects have been agreed by ESA, one extension of this is the climate modelling users group. New variables are out for tender this summer, more following next summer.

CMUG, lakes, land surface temperature, water vapour and biomass are all being highlighted as areas of UK interest.

**ACTION 07/07/2017-16: Briony to contact the existing ECV teams and see what UK involvement is at risk because of the gap in tenders.**

**ACTION 07/07/2017-17: Geoff Buswell and John Remedios to work with Briony to start identification of the UK benefit routes; the non-C3S research use and market potential for exploiting CCI**

**ACTION 07/07/2017-18: Debbie and Geoff to share the information about how the CCI portal should evolve (ESA deliverable)**

**ACTION 07/07/2017-19: Briony to collate any concerns from UK research institutions involved in ECV production relating to retaining of leading expertise during the Brexit process. Report back to UKSA and NERC.**

## 9. C3S general assembly

**ACTION 07/07/2017-20: Geoff to circulate meeting slides**

November / December will see the first public release of the CDS including limited datasets and chance to use and feedback on the functionality.  
Final release will be summer 2018.

## 10. MicroCarb – Harmurt Boesch

MicroCarb will be the first dedicated CO<sub>2</sub> mission developed by CNES, and the first European GHG mission. It will acquire highly accurate CO<sub>2</sub> column measurements (accuracy 1-2 ppm) to understand regional sinks and sources, building on heritage from OCO-2 (NASA) and GOSAT (JAXA).

Unique features of MicroCarb:

- Very high spectral resolution
- Additional O<sub>2</sub> band never used before

Could be the first time that the NGP detector is used in space; also planned for use on Sentinel 5 due to launch in 2021 (see e.g. <http://spie.org/Publications/Proceedings/Paper/10.1117/12.2197239>).

MicroCarb will have a “city mapping mode” with a much higher resolution, although triggering this mode would interrupt the global observation cycle and leave data gaps.

MicroCarb will be the first European GHG mission.

**ACTION 07/07/2017-21: Briony to arrange meeting for interested parties to explore the opportunity MicroCarb enables for developing a carbon service. If materialises into a project, could become a mini project under the group.**

### **11. Market Development – Briony Turner**

Briony spoke about the big market appetite for above Microcarb data including that stemming from the Finance Sector, particularly financial institutions wishing to assess investment risks arising from transition to low-carbon and climate-resilient economies. An example was included of the World Resources Institute and UNEP Finance Initiative partnership which produced a Carbon Asset risk discussion framework. Transition to a low carbon economy will provide many opportunities for EO data, data analytics and visualisations across many sectors.

Her presentation set out an example of the Food retail sector being a potential leader for use of EO climate data but also drew on laggard sectors which might be prompted to action via efforts globally by the investment community to devise a consistent approach to climate risk disclosure.

Organisations are starting to disclose their organisational climate risks. EO data provides assured, reliable, global datasets that could withstand shareholder scrutiny. Reference was drawn to the recent publication of the final recommendations by the Task Force on Climate-related Financial Disclosures, commissioned by the G20. The recommendations are for voluntary climate-related financial disclosures that are consistent, comparable, reliable, clear, and efficient, and provide decision-useful information to lenders, insurers, and investors –these institutional players operate across all sectors.

EO data can assist industries that are going to experience a negative or positive climate impact on annual returns. For instance, sectors expecting a positive impact will be looking for data to increase efficiency and those facing negative impact will be looking for partners to assist with resolving the problems.

A short workshop was then held on which ECV's, S4C members felt are most exploitable now for commercial and societal work? And which will be best in 5 years' time. Members in attendance were asked to rank on degree of exploitability and explain their decisions

**ACTION 07/07/2017-22: ALL - Which ECV's are most exploitable now for commercial and societal work? Which will be best in 5 years' time? S4C Group to prioritise a list of the ECVs and think about how we can exploit our personal contacts and expertise to target these.**