Climate Services Standards and Value

Murray Dale, JBA
Briony Turner, Space4Climate
2nd June 2021

Met Office

UK Research and Innovation

UK CLIMATE RESILIENCE PROGRAMME

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PROJECTS

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This section showcases UKRI projects and Met Office work packages that are being conducted for the UK Climate Resilience Programme. Click on the tiles to find out more about individual projects/work packages or select from the quick list of project titles below.

Quick Project List

Overview

Premise for the project

Climate services definition

Progress to date

Future plans and engagement opportunities

Response from stakeholder representative, Briony Turner

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Premise for the project

Climate services are a critical component of adaptation*. Decision makers are often dependent upon the insight of specialist climate service providers to understand their hazards, vulnerabilities and exposure, then to turn that understanding into effective action.

A well-functioning climate service can help society to be more resilient to current and future climate threats.

As yet, no standard for climate services exists.

There is also increasing interest in monitoring and valuing climate services. Investing in climate services leads to improved information, which can in turn provide economic, environmental and societal benefits to users, as they lead to positive outcomes from the actions and decisions taken.

Central to project approach is a focus on the user as well as provider of the climate service. Climate services standards need to facilitate and support user needs; effectively engaging the user within their current capacity whether they be a novice or deeply experienced.

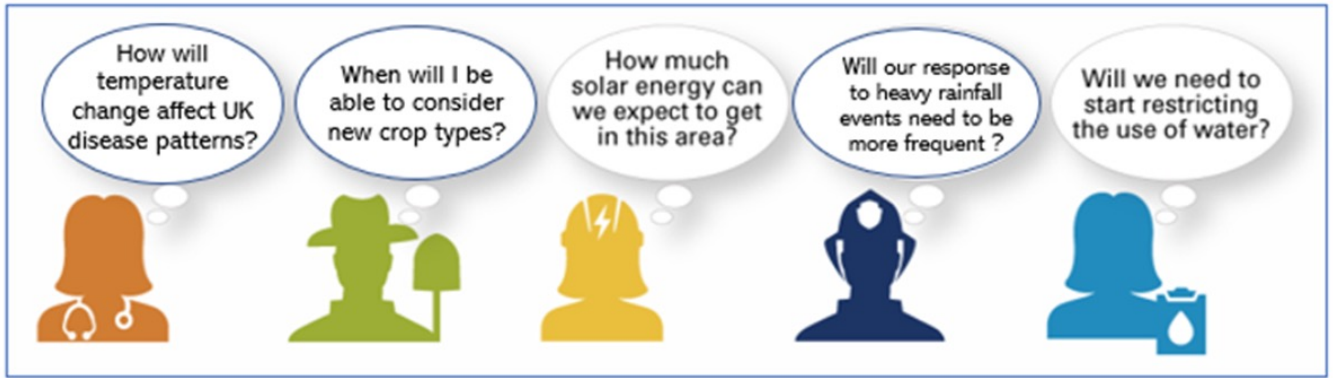
*Hansen, J., J. Furlow, L. Goddard et al. 2019. "Scaling Climate Services to Enable Effective Adaptation Action." Rotterdam and Washington, DC.

What are climate services?

Climate services involve the production, translation, transfer, and use of climate knowledge and information in climate-informed decision making

Climate services provide climate information to help individuals and organisations make 'climate smart' decisions and that by doing so, provide economic, environmental and societal benefits.

Climate services provide timely, tailored information and knowledge to decision makers (generally in the form of tools, products, websites, or bulletins) to improve their capacity to manage climate-related risk.



Climate services examples and decision-making (adapted from example provided by WMO https://gfcs.wmo.int/what-are-climate-services)

Climate services in scope

- Climate services for present day risks and opportunities (observations based)
- Climate services for seasonal risks and opportunities (based on climate and weather projections)
- Climate services for longer term risks and opportunities (based on long-range climate model projections)

Source: https://climate.nasa.gov/effects/

Project Delivery Team

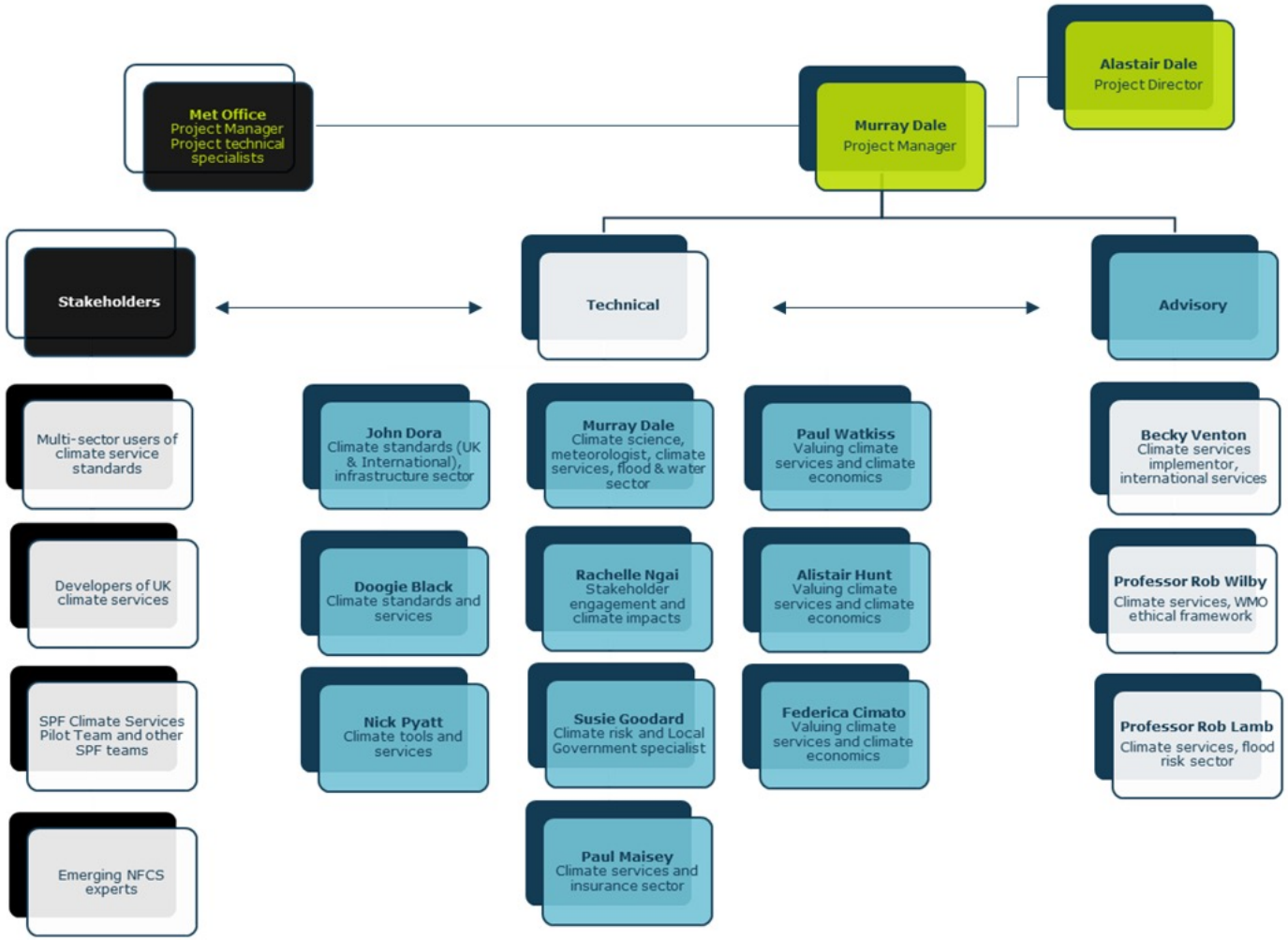
JBA consulting

CLIMATE SENSE

Paul Watkiss Associates

Becky Venton Consulting

Loughborough University



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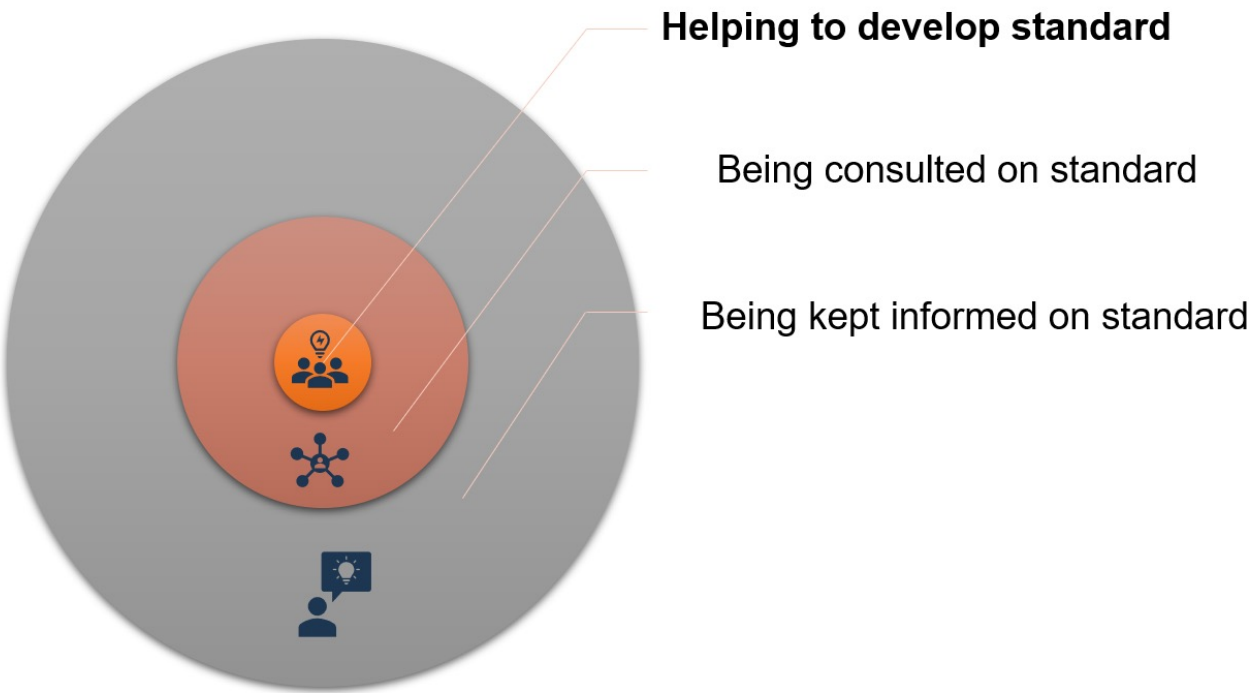
Assembling stakeholder groups



Group	Role
Helping develop	- Offering text - Periodic meetings to discuss standard evolution - Working drafts in July, December, June 2022 - Likely online
Being Consulted	- Commentary on drafts + text - Send draft of standard as it evolves to provide comment (estimate 4 times over project)
Staying Informed	- Send updates on standard development (estimate 3 times over project)

Helping to develop the standard

- Atkins
- City of London Corporation
- Committee on Climate Change (CCC)
- European Centre for Medium-Range Weather Forecasts (ECMWF)
- Kent County Council
- Institute of Environmental Management and Assessment (IEMA)
- London Climate Change Partnership
- Met Office
- National Trust
- NHS
- Sniffer
- UKCIP
- University of Leeds
- Yorkshire Water

Being consulted / kept informed

- Adaptation Scotland / Historic Environment Scotland
- Environment Agency
- Farming and Wildlife Advisory Group (FWAG)
- Forestry Commission
- Institution of Mechanical Engineers
- Jacobs
- Met Office
- Network Rail
- Royal Meteorological Society
- S&P Global Ratings
- Transport for London (TfL)
- UK Research & Innovation (UKRI)

First engagement event output

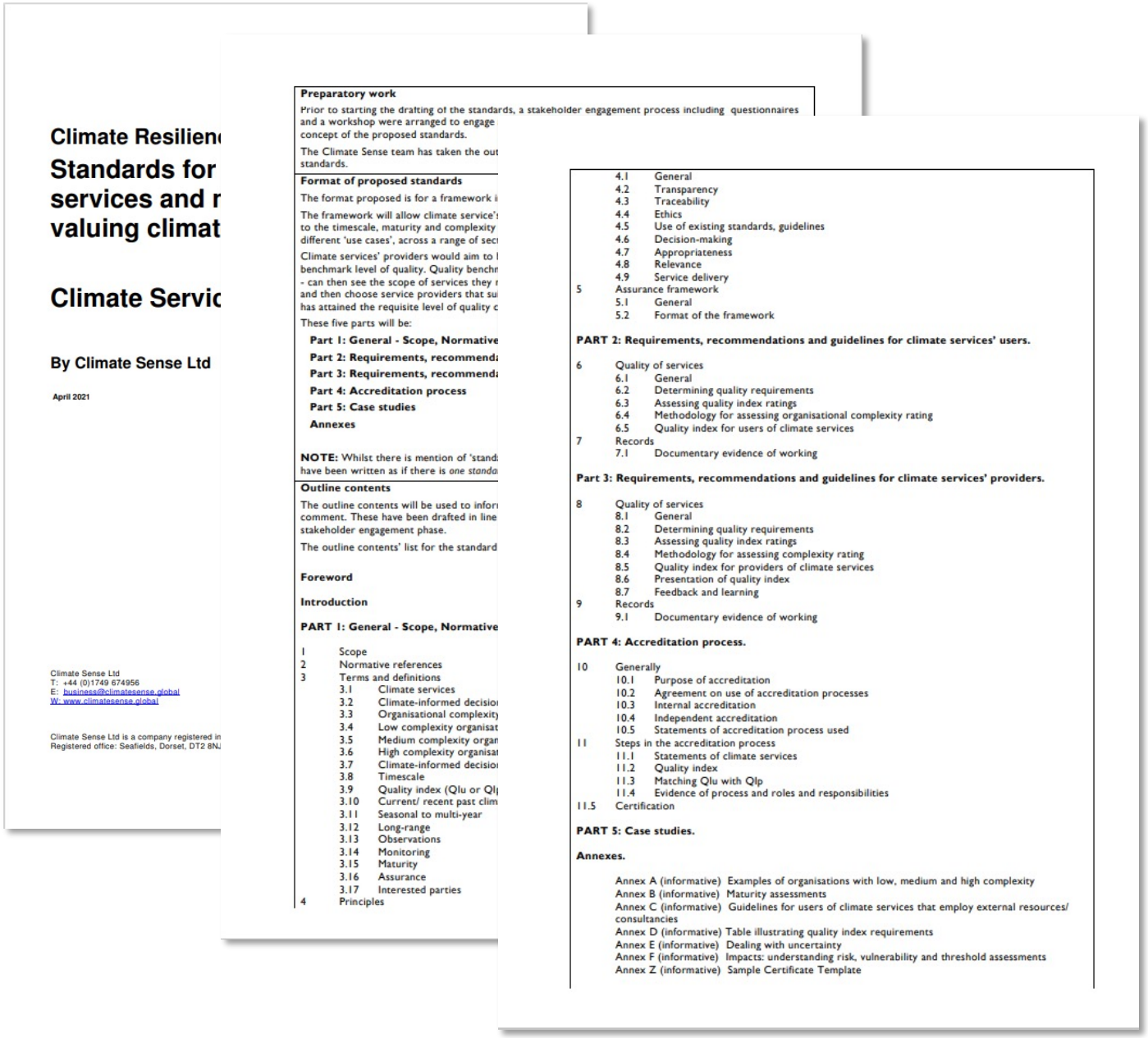
Q1: How should the standard consider the interface between CS users and providers?

Wider theme	General comment	Count of times referenced
Service delivery and accessibility	Accessibility to the service and data outputs / simplicity for ease of use	4
	Constraints affect access, e.g. licences, licence fees, 'tie-ins', aspects that reduce potential for innovation (because of being forced to rely on a key service)	1
	Consider enablers and barriers to use - e.g. restrictions of CS users - ranging from limited technical skills/competency through to lack of budget/resource	2
	Importance of case studies (commercial examples as well as public)	1
	Service continuity is very important (links with recent NIC Resilience work) (includes 1 comment from chat section)	2
	Data updates should be considered in standard	1
	Case studies will be important to make it real and useable (comment from chat section)	2
Quality	Outputs need to be understandable / users know what data are applicable for what use	4
	Quality – providers should be transparent about precision of data sets & uncertainty	4
	Don't have a hierarchical relationship between user and provider (i.e. with provider 'above' user)	1
	Data and output aligned to user need / fit for purpose	2
	Is there a need for proportionality (as for ISO 14092)? (comment from chat section)	1
	Standard should clarify appropriate and not appropriate use of the data (comment from chat section)	1
User-provider inter-action	Relationship between user and provider can become blurred and may not be helpful to distinguish	1
	Onus on users to specify what use data will be put and the quality needed	1
	CSs should be co-created by users and providers (e.g. UKCP18 for water resources) / providers should be required to involve potential users	2
	Don't have a hierarchical relationship between user and provider (i.e. with provider 'above' user)	1
Standard and its use	'Major' users should be convinced to embed the standard in their systems	1
	Standard represents 'best practice'	2
	Being clear on the scope of the term 'services' (in climate services) (i.e. saying what is not included)	1
	criteria that need to be used - traceability, underpinning data quality, quantification of uncertainty, interpretation of data, qualification of those providing the service etc	1

Q2: What would encourage use of this standard?

Wider theme	General comment	Count of times referenced
Useability / relevance	Relevance	1
	Ease of use, accessible	2
	Knowledge that having the standard drives actual change and improvements	1
	able to be used by all sizes of organisation - should be flexible enough / fit for purpose	2
	TCFD relevance & experience	2
	How is it updated (standards can go out of date quickly) (comment in chat section)	1
Freedom	Allowing the standard to be used without 3rd party certification (so it's an option)	1
	voluntary but is adopted because it is well drafted and helpful	1
	No ability to "self-certify" must have an independent accreditation	1
Quality	Allows comparison of CS quality	1
	Evidence that CS quality is improved when compliant standard	1
Reputation / expectation	The adoption of the standard by a significant fraction of the "big players" in the field	1
	Government or regulatory expectation	1
	Included in procurement process for tenders	2
	Competitors selling services advertised as compliant with the BSI Standard	1
Publicity	Publicity that the standard exists, raising awareness	1
	well promoted	1
Development aspects	User representation on the writing group	1
	Learning lessons from ISO14001	2

Standards framework proposal



Climate Resilien
Standards for
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valuing climat

Climate Servic

By Climate Sense Ltd

April 2021

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W: www.climatesense.global

Climate Sense Ltd is a company registered in
Registered office: Seafields, Dorset, DT2 8N

Preparatory work

Prior to starting the drafting of the standards, a stakeholder engagement process including questionnaires and a workshop were arranged to engage
concept of the proposed standards.

The Climate Sense team has taken the out
standards.

Format of proposed standards

The format proposed is for a framework i

The framework will allow climate service'
to the timescale, maturity and complexity
different 'use cases', across a range of sec

Climate services' providers would aim to
benchmark level of quality. Quality benchr
- can then see the scope of services they
and then choose service providers that su
has attained the requisite level of quality c

These five parts will be:

Part 1: General - Scope, Normative
Part 2: Requirements, recommenda
Part 3: Requirements, recommenda
Part 4: Accreditation process
Part 5: Case studies
Annexes

NOTE: Whilst there is mention of 'stand
have been written as if there is *one standa*

Outline contents

The outline contents will be used to infor
comment. These have been drafted in line
stakeholder engagement phase.

The outline contents' list for the standard

Foreword

Introduction

PART 1: General - Scope, Normative

PART 2: Requirements, recommendations and guidelines for climate services' users.

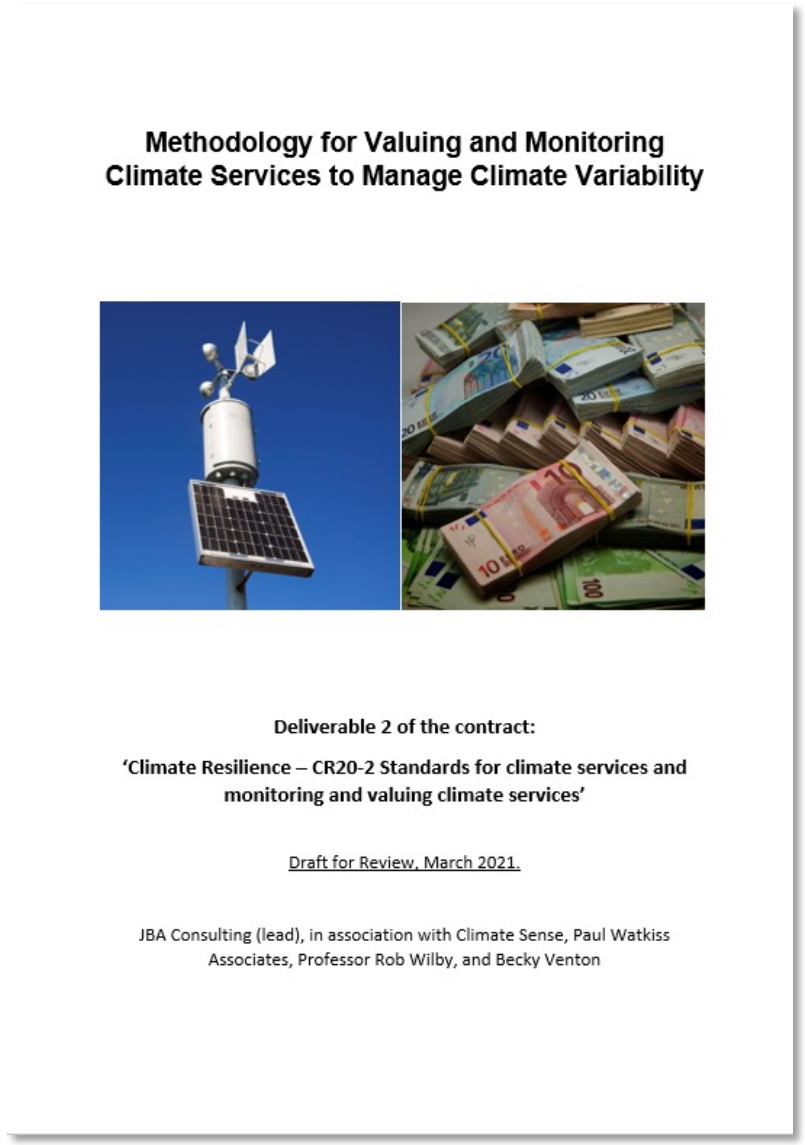
Part 3: Requirements, recommendations and guidelines for climate services' providers.

PART 4: Accreditation process.

PART 5: Case studies.

Annexes.

Monitoring & Valuing Methodology



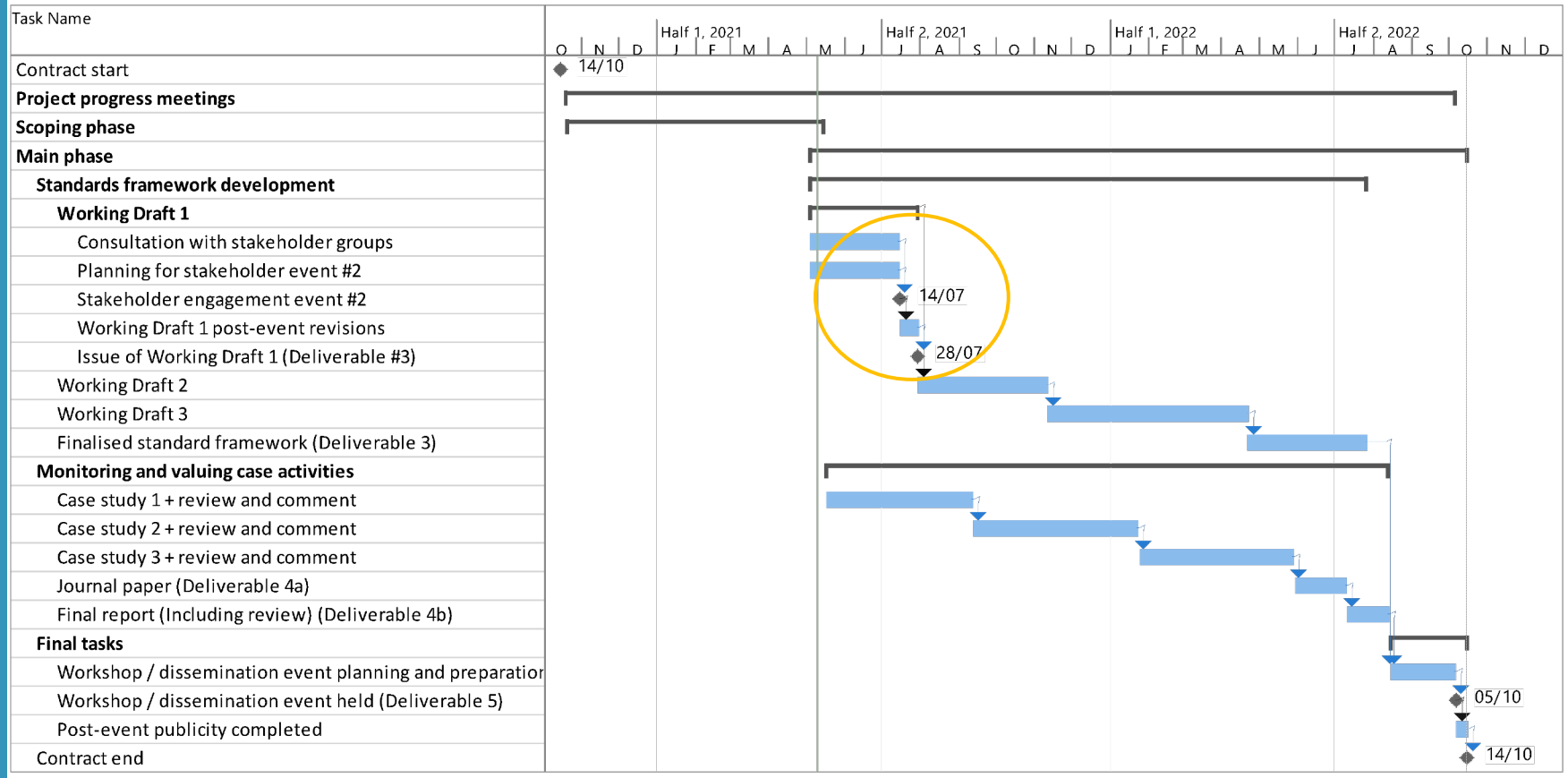
- Report sets out approaches for valuation and monitoring climate services
- In process of finalisation
- Three case studies will follow:
  - Historic / observation based services
  - Seasonal forecast services
  - Adaptation services

Outcomes

Standard framework for providing quality assurance for users and providers of services

A tested approach for valuing and monitoring climate services

Future plans



Engagement

Stakeholder groups have been established but…

… if you are a climate service user or provider and would like to be involved in helping to develop the standard or being consulted on the standard, or being kept informed:

Please send you details in an email, explaining your reason for wishing to be involved in one of the above capacities, to: Rachelle.Ngai@jbaconsulting.com

While we need to keep these groups to a manageable size, we are keen to hear from others who wish to join.

Intended project benefits

1.Climate service **users feel confident** that a climate service user group has fed into a new standards framework for climate services, thereby enabling more effective and informed decision making and climate risk management when using seasonal forecast and longer term adaptation services.

2.Climate service **providers have an approved, national standards framework** to use when developing new services, or measuring existing services against.

3. Climate service **providers can benefit commercially** by demonstrating that their services are meeting national standards

4.Climate service users and providers have **important information on the value** of climate services that have been tested through the application of case studies.

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Perspectives from a stakeholder: Briony Turner, Space4Climate

Met Office

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Climate services standards and value from a data supply chain perspective

Briony Turner, Space4Climate
2nd June 2021

Met Office

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SPACE 4 CLIMATE

SPACE4CLIMATE: About us

UK CLIMATE RESILIENCE PROGRAMME

Who we are

Chaired by the UK Space Agency, Space4Climate spans government, industry and academia, uniting those with expertise in the development of satellites, analysis and exploitation of data they gather, and production of quality assured global data and climate services.

Trusted services

Our mission is to ensure a seamless supply of trusted climate intelligence from space so that the UK offers a thriving, supportive environment for the development of quality assured products and services enabling climate-smart decisions, disclosures and climate-sensitive planning.

What we do

We connect UK producers and global users of trusted Earth observation data and actionable space-enabled climate analytics and services. We respond rapidly to emerging needs and develop new opportunities and collaborations. Discover more about our membership activities.

SPACE4CLIMATE: Task Groups

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Climate and EO data for international aid and sustainable recovery

This Task Group supports project and resource developments in the community through sharing learning, capacity building and augmentation of tools and data products.

Task Groups

22 January, 2021

Urban vegetation health and climate resilience Task Group

Monitoring urban vegetation health will help support land managers in optimisation of green infrastructure ecosystem and urban climate services.

Task Groups

21 January, 2021

Food supply chain climate resilience Task Group

The food supply chain Task group will map existing and future capability suitable for use in food supply climate risk disclosure, stress testing, monitoring and decision support.

Task Groups

18 January, 2021

Climate Risk Disclosure Task Group

Drawing expertise from across the Space4Climate group to explore how best climate satellite data can help the green finance sector make climate informed decisions.

Task Groups

Competent Persons Task Group

Investigating what the Space4Climate community can do to provide a platform for quality assurance and professional services component of the climate services market.

Task Groups

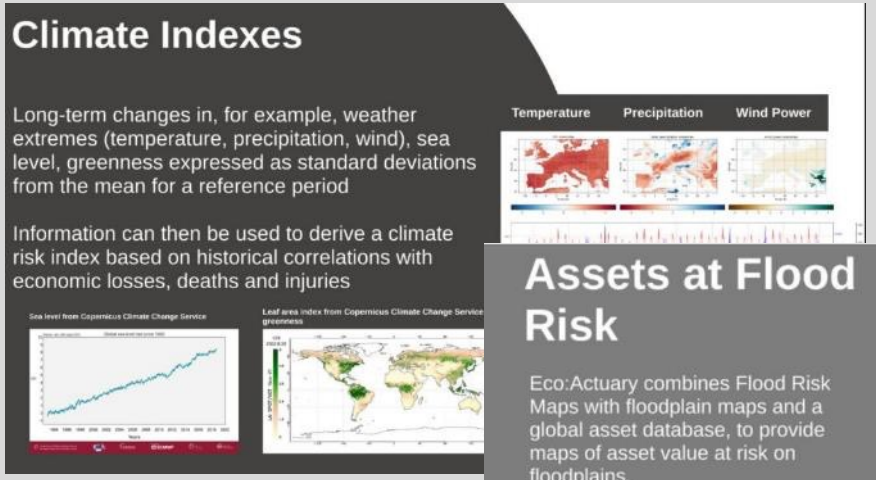
30 July, 2020

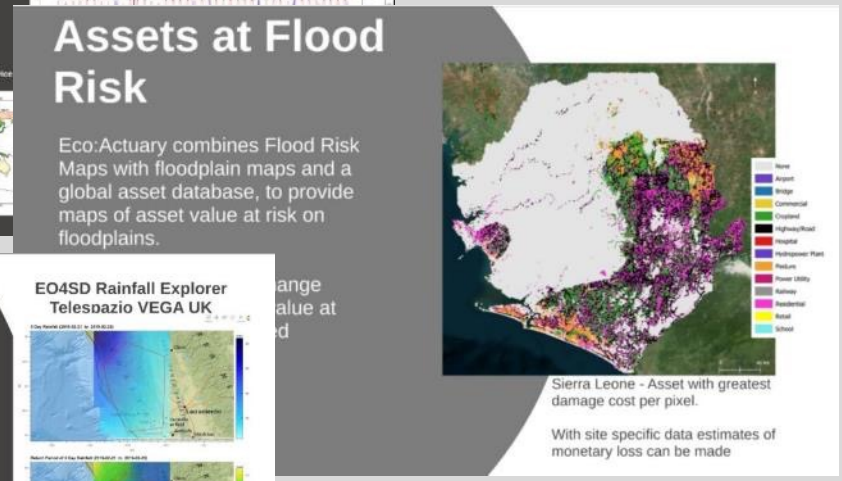
Climate Change Initiative Exploitation Task Group

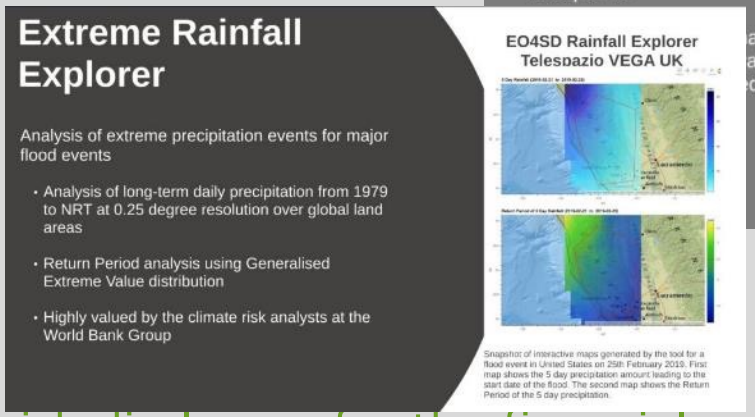
Reviewing current value in UK based organisations being generated from CCI and explore data exploitation potential.

Task Groups

30 July, 2020



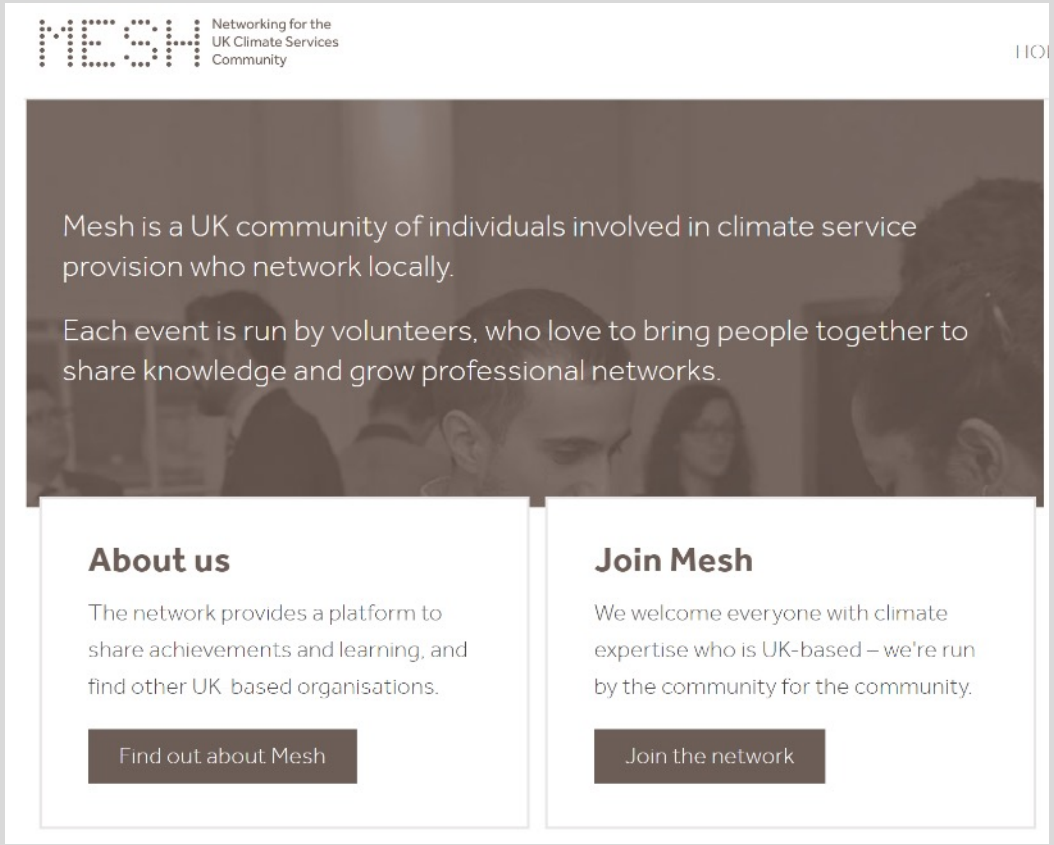


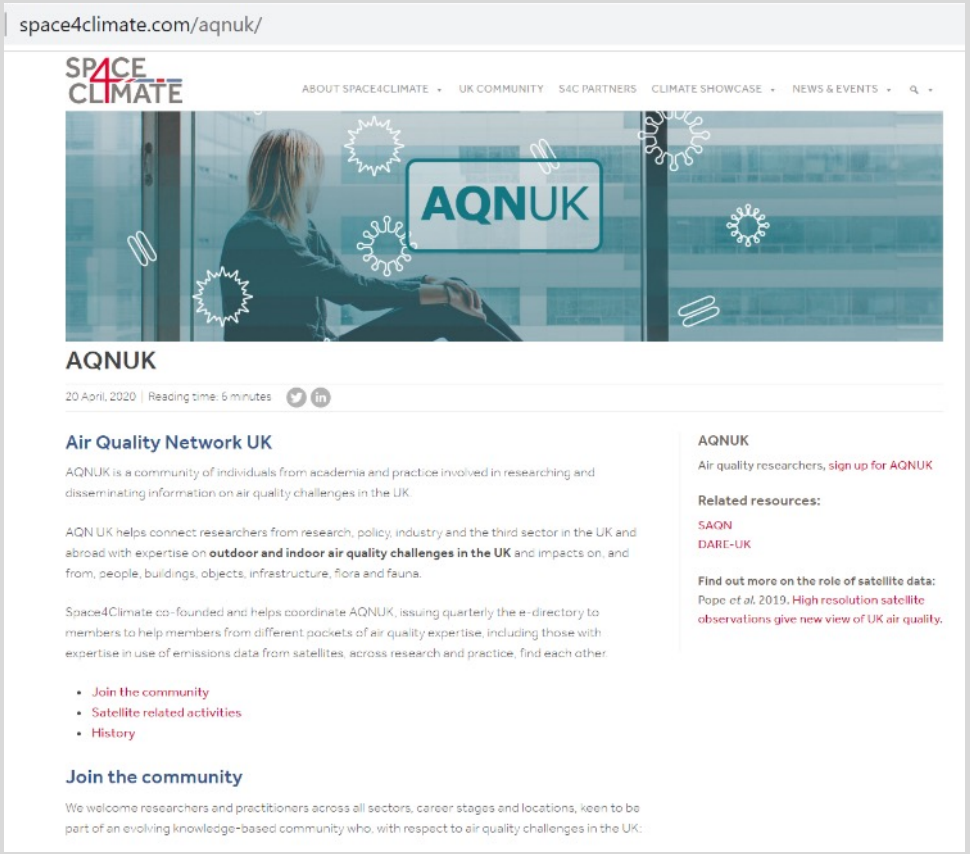


http://www.space4climate.com/space-enabled-climate-risk-disclosure-for-the-financial-services-sector/

SPACE4CLIMATE: Networks we host

http://meshclimate.net/





UK contribution to the European Space Agency's Climate Change Initiative (CCI) programme

	LAND	ATMOSPHERE	CRYSOPHERE	OCEAN	CROSS ECV
UK LED	Biomass Land surface temperature	Water vapour	Antarctic ice sheet	Ocean colour Sea surface salinity Sea surface temperature	Climate Modelling User Group (CMUG)
UK INOVLVED	Lakes Landcover Fire (phases 1&2)	Aerosol Greenhouse gases Ozone Cloud	Ice sheets Greenland Glaciers Snow	Sea state Sea level	Sea Level Budget Closure Knowledge exchange REgional Carbon Cycle Assessment and Processes Phase 2 (RECCAP-2)

https://climate.esa.int/en/projects /

SPACE4CLIMATE: Climate services

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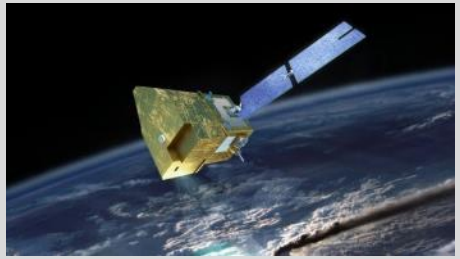
Data creation

Dataset collation and platforms

Data verification and quality assurance

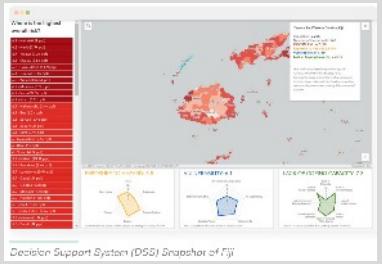
Information translation and big data analytics

Value-added services



Artist's impression of the MicroCarb satellite. Image: CNES.

Centre for Environmental Data Analysis
SCIENCE AND TECHNOLOGY FACILITIES COUNCIL
NATURAL ENVIRONMENT RESEARCH COUNCIL



Decision Support System (DSS) Snapshot of Fiji

https://www.spacefordevelopment.org/

Data supply chain –in/out of climate services professionalisation and valuation?

https://cds.climate.copernicus.eu

What are the dependencies of a trusted service?

Early engagement and scoping needs – SERVICE not off-the shelf products that hope for a matching problem

Data quality

Data access

Continuity of access *

Continuity of provision *

Ownership and accountability of service provision

Feedback from user

https://climate.copernicus.eu/data-action

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Professionalisation of climate services from space

- Space4Climate established a dedicated Task Group in late 2018 to investigate pragmatic route(s) for the UK in the quality assurance of Earth observation climate services.
- It sought to establish if a 'competent persons' approach has benefits and possibilities for UK Earth observation and/or climate products and services. *Competent persons are those who are formally awarded professional status in a certain discipline, receiving Chartered status and designatory letters, which are recognised in law and regulated by professional bodies.*
- We spoke with 10 professional bodies relevant to Earth observation and climate services, who have the power to award Chartered status
- We also spoke with individuals from standards bodies, for their perspectives on maintaining and developing requirements and benchmarks through people.

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DATA PARTNERSHIPS

Global Partnership for Sustainable Development Data

- Joint work programme to investigate how partnerships can unlock increased cooperation along the value chain of data-driven climate action, so that data systems are appropriate and inclusive by design, and local perspectives are part of data-driven policy making.
- Findings so far
  - Inclusive data systems and services are not just ethical but make business sense
  - Consideration needed for the appropriateness of data solutions and systems that are designed at the international level but that need to be deployed in specific local contexts
  - Professionalisation not just for individuals and organisations but also for data partnerships delivering climate services
  - Data science, stewardship and data scientists are crucial for development of a code of ethics and regulatory framework
- London Climate Action Week Event: Responsible climate partnerships learning session 29 June
- Please contact us if interested in finding out more about this work: b.d.turner@reading.ac.uk

Contact details

Website: www.ukclimateresilience.org

Twitter: @UKCRP_SPF

YouTube: UK Climate Resilience programme

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The UK Climate Resilience programme is supported by the UKRI Strategic Priorities Fund.
The programme is co-delivered by the Met Office and NERC on behalf of UKRI partners AHRC, EPSRC, ESRC.

Slides for use to respond to questions

Met Office

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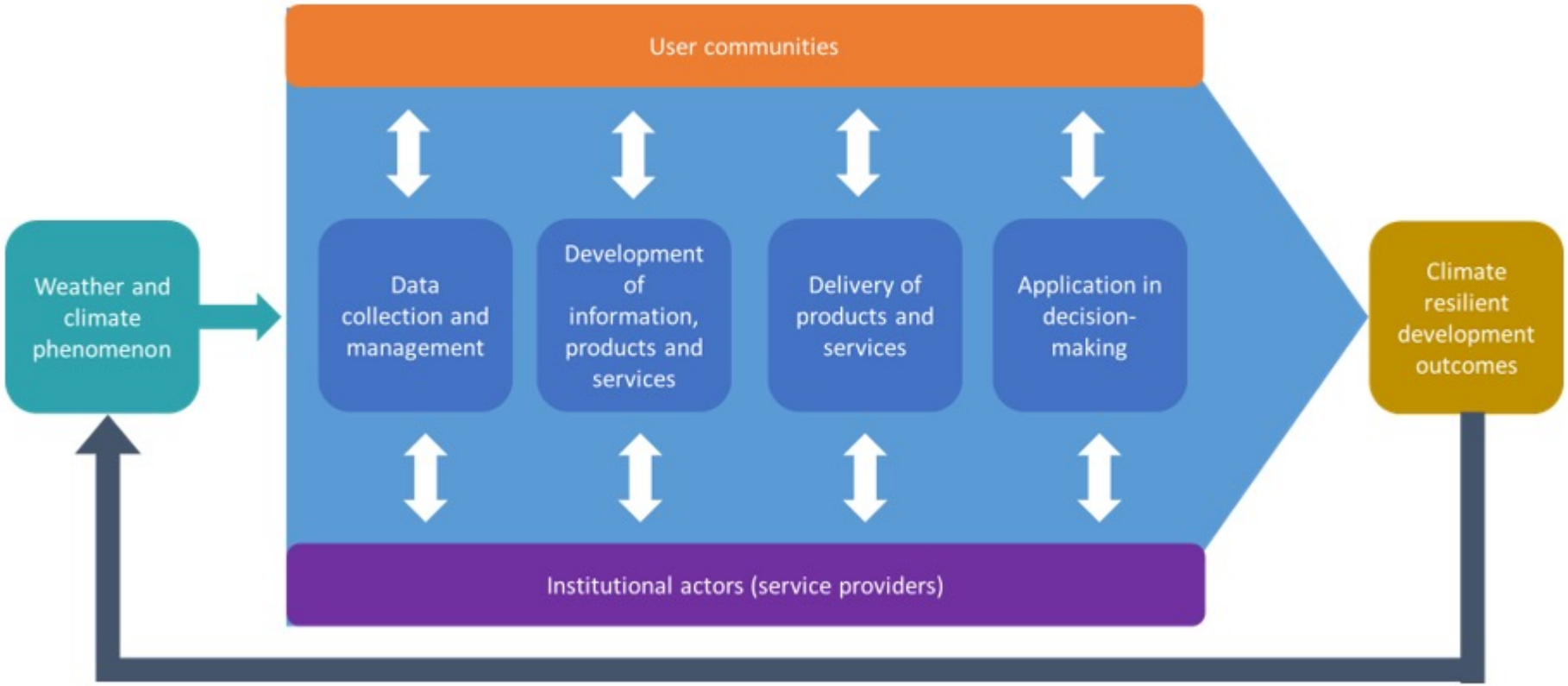
Linking climate service providers with users



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Questions, answers, discussion

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Next webinars:

Wednesday, 16th June, 2021 12.30-13.00

Speaker: Richard Pywell, Centre for Ecology and Hydrology (CEH)

Title: *Monitoring and predicting the effects of Climate Change on crop yields (CROP-NET)*

Wednesday, 30th June, 2021 12.00-13.00

Speakers: Richard Betts and Kathryn Brown

Title: *Findings of the CCRA3 Evidence Report*

Register on our website:
https://www.ukclimateresilience.org/news-events/climate-resilience-webinar-series-2020-2021/

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Climate Change Committee

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