Introduction to the Met Office

The Met Office has been operating as a Trading Fund since 1996, originally as an Executive Agency of the UK Ministry of Defence (MoD). As part of a Machinery of Government change
in July 2011 the Met Office became an Executive Agency of the Department for Business, Innovation and Skills (BIS). As the UK’s national meteorological service, it provides a range of products and services to a large number of public and private sector organisations. It also represents the UK within the World Meteorological Organisation (WMO) and plays a prominent role in international meteorology.

The Met Office is one of the world’s leading providers of environmental and weather-related services. It delivers proven weather related services for many different types of industry on a twenty-four hour basis. Many of these services are time critical. The Authority is involved in many areas of research and development in the fields of atmospheric and oceanic sciences and observations. Its research and development activities aim to improve the accuracy of our forecast services and the efficiency with which they can be produced. This enables its customers to benefit from the progressive international advancement of weather forecasting techniques.

The “Met Office Hadley Centre” is a world leading centre for climate change research. Through the DECC (Department of Energy & Climate Change) and Defra (Department of Environment, Food & Rural Affairs) funded Met Office Hadley Centre Climate Programme, it provides in-depth information and advice to the Government on climate change issues. To achieve this, the Hadley Centre needs a large production facility to run complex multi-model integrations and ensembles of integrations as well as a resource for research and development. These models can run over periods of months and are time critical to meet deadlines for the customer and for the International Panel for Climate Change (IPCC).

The Met Office recognises the effect upon the environment its operations may have and sets clear commitments to minimise our environmental impacts though an Environmental Policy and the operation of its Environmental Management System (EMS), certified to the ISO14001 standard. It encourages environmental awareness amongst those working for or on behalf of the Met Office, promoting the efficient use of resources and compliance with applicable environmental legislation and other requirements as appropriate to our business.
Further information about the Met Office is available on the following website:
http://www.metoffice.gov.uk

The Newton Fund

The Newton Fund was launched by Government in April 2014 to develop links between the UK and nominated countries to develop links in the development of science and innovation through partnership working.
Its aim is to promote the economic development and welfare of developing countries through 3 areas of activity:

- People: improving science and innovation expertise (known as ‘capacity building’), student and researcher fellowships, mobility schemes and joint centres
- Programmes: research collaborations on development topics
- Translation: innovation partnerships and challenge funds to develop innovative solutions on development topics


The Met Office has been selected as a Newton Fund Delivery Partner to lead a 5 year research programme in partnership with the Chinese Meteorological Association (CMA) and the Institute of Atmospheric Physics (IAP) at the Chinese Academy of Sciences.

For further information relating to the Newton Fund please see the website:
BIS Newton Fund
The Climate Science for Service Partnership (CSSP) – China

The CSSP China is a scientific research programme led in the UK by the Met Office and in China by the China Meteorological Administration (CMA) and the Institute of Atmospheric Physics (IAP) at the Chinese Academy of Sciences. Understanding that weather and climate are critical factors in the livelihoods and development of all businesses and individuals, our challenge now is to provide services which help us to work to reduce the exposure of those communities that are particularly vulnerable.

The evidence is unequivocal: our climate is changing. Understanding that the climate is changing, and that weather and climate are critical factors in the livelihoods and development of all businesses and individuals, our challenge now is to translate cutting-edge climate science into Climate Services.

This will help us to work to reduce the exposure of those communities that are particularly vulnerable, where climate-resilient development is essential for tackling the barriers to social welfare and economic growth.

One of the areas for which this is particularly important is Asia, where the multiple stresses caused by rapid urbanisation, industrialisation and economic development over recent years are likely to be compounded by climate change. Here climate services are needed to ‘enable society to better manage the risks and opportunities arising from climate variability and change, especially for those who are most vulnerable to such risks’, as identified by the Global Framework for Climate Services.
In response to this challenge the Met Office are working with the China Meteorological Administration (CMA) as a Newton Fund Delivery Partner to establish a ‘Climate Science for Service Partnership’ (CSSP) with China. Through the CSSP China we are developing a strongly bi-lateral partnership focused on research and innovation between the Met Office, the CMA and other key institutes within China and the UK which will establish a firm foundation of cutting-edge science.

This will form the basis upon which climate services can be developed that support climate-resilient economic development and social welfare, and enable the UK to develop strong, sustainable and systemic relationships with partner institutions.

The three primary outcomes of the CSSP china:

1. A strong strategic partnership between UK and Chinese climate scientists;
2. Accelerated and enhanced collaborative science R&D programmes;
3. Climate services, developed in partnership, based on the climate science research & development (R&D) programme.

By working in partnership to develop targeted climate science for services we aim to show the impact of science and help communities, businesses and government navigate the risk and opportunities of a changing climate.

CSSP will enable partnerships to grow within China and across the UK, not only for the benefit of science, but by working partners in China build the science for services needed to combat the challenges associated with a variable and changing climate and reduce the exposure of those most vulnerable to its impacts.
CSSP-China Project Oversight

The CSSP Programme and the projects within the programme are managed in line with PRINCE2 (PRojects IN Controlled Environments) standards, a process-based method for effective project management commonly used across government as best practise.

Additionally, the CSSP China project is overseen by an Executive committee consisting of senior representatives of CMA, IAP and the Met Office. They meet periodically to discuss management of the project, to agree the overall structure of the project and to agree designated roles within the project.

The science plan for CSSP currently has five work packages. Subject to agreement by both UK and China partners, there is the potential to change the number or scope of Work Packages during the course of the project as long as any changes remain consistent with the overall scientific direction of the project as outlined above.

Scientific progress in each of the five Work Packages is overseen by a designated WP leader from the Met Office and a designated WP leader from either CMA or IAP. The project is then coordinated by a project office at the Met Office. The project office undertakes scientific coordination, project management and project administration.

The Met Office project office with Met Office WP leads monitor progress from external suppliers and collaborate with their China counterparts to ensure that scientific progress meets the jointly agreed aims of the CSSP-China project. Further details of the Work Packages are given below.

The CSSP-China Science Review Panel (SRP) provides an independent assessment of the scientific aspects of the project. The SRP will:
• Provide an independent assessment of the quality and relevance of the scientific research undertaken by the UK partners within CSSP-China.

• Provide assessment and advice on the strategic alignment of the science to the partner’s shared priorities.

• Keep under review the content and progress of the work packages and delivery of their strategic aims.

• Advise on the partnerships, collaborations and interactions between other science programmes, organisations and research activities, both current and potential, in the UK, China and Internationally.

CSSP Work Package Descriptions

Work Package 1 (WP1) : Monitoring, attribution and reanalysis

The observational record of East Asian climate needs to be developed to enable increased confidence in our understanding. Climate variability takes place over a range of timescales, including multi-decadal, so long data sets are needed.

To understand extremes we need observational data at daily or sub-daily timescales and to capture regional processes we may need to increase the spatial resolution of gridded datasets. In all cases, the quantification of uncertainties in those observational data is essential.

The goals of this work package are to:
• Improve the observational basis for understanding East Asian climate variability and change by including early years’ data through digitisation, and by developing techniques, software and tools to improve gridded datasets, including at higher temporal and spatial resolution and to assess their uncertainties. One focus could be on precipitation, to better enable the understanding of the East Asian Summer Monsoon and the wider hydrological cycle (see also WP3).
• Develop a collaborative programme on the attribution of climate-related extreme events and long term trends in the East Asian region, and their likely causes.
• A long-term goal of the CSSP-China could be to develop a regional reanalysis for East Asia.

Work Package 2 (WP2): Global dynamics of climate variability and change

The climate science community recognises that understanding of global climate dynamics is needed to improve regional climate predictions.

This science underpins our ability to make forecasts from months to decades ahead and to have confidence in future projections of regional climate change.

Hence this underpinning science lies at the heart of many of the objectives of CSSP-China. Modes of variability such as ENSO and the Pacific Decadal Oscillation and changes in the East Asian Summer Monsoon are crucial for East Asian climate variability and change. Similarly, in the UK the North Atlantic Oscillation drives much of our climate variability and adds uncertainty to climate change projections. Yet the representation of these sources of variability, their interconnections and drivers, and their influences on regional climate remains uncertain in climate models.
Therefore the CSSP-China will aim to evaluate our climate models and investigate the dynamical mechanisms and predictability of modes of variability and associated regional climate variability from months to decades ahead.

The long-term aspirations of this work package are to:

- Develop a vibrant and collaborative community of scientists in the MOHC and China with expertise in the climate dynamics of oceans and atmosphere.
- Use advanced dynamical analysis tools and diagnostics to evaluate and understand global modes of climate variability and their teleconnections to regional climate.
- Develop a comprehensive understanding of the mechanisms and predictability of regional climate variations on seasonal and longer timescales, and use this to critically examine performance of climate models and predictions.
- Increased confidence and a reduction of uncertainty in regional climate predictions for Europe and China through an increased understanding of the dynamical mechanisms.

**Work Package 3 (WP3): East Asian climate variability and extremes**

The focus in WP 2 is on global aspects of modes of variability and predictability. WP 3 is focused on regional expression of these modes and their teleconnections and impacts on regional water cycle and climate extremes within the East Asian region.

This will include the understanding of physical mechanisms and potential of predictability of regional climate variability and extremes, evaluating and improving modelling capabilities and prediction skills; and the assessment of climate risks and development of early warning methods.
This WP will build upon existing UK-China collaborations in East Asian monsoon, high resolution modelling and regional drought.

The long-term goals of this work package are to:

- Increase the understanding of East Asian climate variability and change over East Asia on seasonal to decadal timescales.
- Increase the understanding of drivers of regional drought and flooding and developing the capability of early warning methodology.
- Develop convection-permitting models for the East Asian region to capture extreme climate events and their impacts such as heat waves, flash floods and the impact of large-scale urbanization and mega cities.

Work Package 5 (WP5): Climate services

With the key elements of the underpinning science needed for service development in place from WPs1-4, the CSSP will be in a strong position to develop climate services based on such building blocks.

There is tremendous potential to develop such services as part of the China Framework for Climate Services response to the WMO Global Framework for Climate Services. The CSSP will develop pilot projects for particular sectors.

It will also develop the translational science needed to produce usable knowledge and applications built on a solid scientific foundation.

The long-term goals of this work package are to:

- Develop translational science, a multi-disciplinary approach to bridge the gap between climate science and society to produce useable knowledge and applications.
• Identify user needs and develop climate services for particular sectors, which could include the energy, water and agriculture sectors for example. The aim is to develop case studies to demonstrate the value of climate science for services by translating climate information into beneficial decisions.

CSSP - Competition

The calls within the CSSP-China project range from more open calls for research proposals, to calls for more-directed commissioned work. For example, Parts of WP1, WP2 and WP3 are concerned with the underpinning science needed to develop climate services, and the calls are broad in scope. Other parts of WP1 have specific requirements and the calls are more tightly specified commissioned work. Generic Requirements have been developed for all calls, described below, whilst call specific criteria are outlined within the call information.

Available competitions:

• WP1 Call One: Attribution of climate change over China
• WP1 Call Two: Contribution to ACRE China
• WP2 Call: Global Dynamics of Climate Variability and Change
• WP3 Call One: Global Dynamics of Climate Variability and Change
• WP3 Call Two: Western Pacific tropical cyclones
• WP3 Call Three: Convection-permitting simulations of East Asian climate
• WP5 Call One: Sector Based Climate Services
• WP5 Call Two: Development of translational science for climate services
Generic Requirements

All successful bids will have to meet the following essential requirements. These essential requirements are generic to all Work Packages and are in addition to any further call-specific requirements outlined in the individual call documents:

1. All bids must be ODA compliant with the guidelines of Official Development Assistance (ODA), which underpins the purpose of the programme, therefore there must be a clear and direct link to demonstrate that there is economic and societal benefit to the proposed project.

   Further official guidance on ODA compliant activity can be found at: [www.oecd.org/investment/stats/34086975.pdf](http://www.oecd.org/investment/stats/34086975.pdf)

2. Excellent and innovative science that delivers to the overall goals of CSSP-China described above.

3. Attendance of at least one representative of the successful bidder at each CSSP-China Science Meeting, likely to number two a year and likely to take place alternately in China and the UK.

4. The delivery to the Met Office of monthly reports updating the CSSP-China WP leads at the Met Office on progress of their work stream including identification of highlights and any project risks and delays.

5. During the first three months of the project, the identification of ‘agreed’ China collaborators (as described below) and identification of agreed China collaboration activities. For the duration of the project demonstration of successful collaborations
with these China-based collaborators including but not limited to jointly co-authored peer-reviewed publications. See further details in the individual call documentation.

6. An annual report delivered at the end of each year detailing progress in the project, including but not limited to, a list of all papers submitted and accepted for publication and providing an account of progress made on China-based collaborations according to the collaboration plan agreed at month 3, and including updates to this plan.

7. The timely delivery of all requested deliverables as detailed in the requirements for that specific call.

8. The provision of a set of milestones against which progress towards deliverables can be monitored and adherence to these or explanation of reasons why not achieved.

9. Acceptance of the grant terms and conditions

**Further details regarding requirement for China collaboration**

Each successful bid would be required to demonstrate successful collaboration with agreed collaborators.

During the first three months of the project, successful bids would be required to identify China collaborators, scope out China collaboration activities and agree them with CSSP-China WP leads.

The CSSP-China WP leads will facilitate this process of identifying agreed collaborators and approved collaboration activities.

Successful bids will be required to produce a deliverable at month 3 of the project that is a report providing details of the approved China collaborators together with a plan for agreed collaboration activities during the course of the project.
The plan for collaboration could include visits by China-based scientists to UK host institutions (or vice versa), preparation of jointly authored papers, sharing of observational or model data, joint UK-China topic-focused workshops etc.

This outline plan for collaboration activities should be put forward in the initial bid and costed accordingly and then revised and agreed as outlined above.

CSSP-China Science Meetings

There are likely to be two CSSP-China Science Meetings each year, one in China, most likely in Autumn, and one in the UK, most likely in Spring.

Attendance at each meeting by at least one representative of successful bids is required.

The exact timings of these meeting will be communicated to successful bidders in due course, to enable sufficient time to make own arrangements.

How to Apply

To apply for this competition organisations must first register on the Met Office Portal.

To register please go to: https://tenders.metoffice.gov.uk/

*Please ensure prior to registration that your organisation is not already registered.*

*• If your organisation has not done so already, please register on the system via the “Register Free” option found on the right hand side of the Home page
• Once registered, they will then be able to search latest opportunities which will include the requirements as per advised*
• Having reviewed the information, there will be an option to express an interest. This will log your details against this specific opportunity and give you access to the information.

• As further information is made available, all suppliers whom have expressed an interest will automatically be notified via the system.

Full guidance on how to register on the system and further guidance on its use can be found within the Help section located on the right hand side of the page: Portal Guidance

Should you require any further information or have any query regarding the joint submission process, please contact your local helpdesk for further information.

Indicative Timetable

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<thead>
<tr>
<th>Activity</th>
<th>Start date</th>
<th>End date</th>
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<tbody>
<tr>
<td>Advertise call</td>
<td>02/03/2015</td>
<td>01/05/2015</td>
</tr>
<tr>
<td>Evaluation period</td>
<td>06/05/2015</td>
<td>20/05/2015</td>
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<tr>
<td>Clarification period</td>
<td>22/05/2015</td>
<td>05/06/2015</td>
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<tr>
<td>Award and feedback</td>
<td>09/06/2015</td>
<td>19/06/2015</td>
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<tr>
<td>Projects commence</td>
<td>01/07/2015</td>
<td>End of term</td>
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*Dates for the release of WP4 will be communicated shortly*

Evaluation and Selection Process
Eligibility and Due Diligence:

Prior to peer review, the eligibility of the applicant will be assessed.

Due diligence evaluation will be conducted in line with process guidelines.

Any failures to meet the minimum requirements will be rejected at this stage.

Approved applications will proceed to be evaluated.

Peer Evaluation:

The Met Office Science Peer Review Panel to review applications received following release of calls for proposals.

The panel consists of members with the appropriate expertise to evaluate proposals and those Panel members are recruited to represent each area of evaluation. Applications are reviewed and scored by a panel of subject matter experts against the criteria and priorities set. Any areas requiring clarification can be sought at this stage. Highest scoring proposals will be sent to an independent reviewer and may be discussed with in-country work package leads prior to award.

Financial Evaluation:

Applications will need to be evaluated for value for money as per the prescribed criteria within the call information.

Award:

Following approvals a grant award notice will be issued to successful applicants