

Met Office Early Market Engagement: Request for Information for Citizen Weather Station Data Service

Who we are

The Met Office is a world leader in providing weather and climate services. We are the UK's National Meteorological Service and a Trading Fund within the Department for Science, Innovation and Technology (DSIT), operating under set targets and returning a dividend.

Recognised as one of the world's most accurate forecasters, we use more than 10 million weather observations, an advanced atmospheric model and a high-performance supercomputer to create 3,000 tailored forecasts and briefings every day. These are delivered to a wide range of customers from the Government to businesses, the general public, armed forces, and other organisations.

We play a key role on the international stage by providing vital services, advancing global understanding through research and being an important participant in projects and organisations.

We are at the forefront of climate change research, playing a key role in helping determine the worldwide response to climate change. Our involvement in global collaborative projects includes advising the Intergovernmental Panel on Climate Change (IPCC) and our tailored advice and services help decision-makers and businesses across public and private sectors to manage risks and opportunities associated with a changing climate.

Further information about the Met Office is available on the following website:

<http://www.metoffice.gov.uk>

Background information about our requirements

The Met Office has been operating the Weather Observations Website (WOW; <https://www.wow.metoffice.gov.uk/>) since 2012, enabling members of the public to submit their weather station observations and exploiting them as an increasingly important source of third party data for use in forecast applications.

This data has been demonstrated to have a positive impact, in particular when incorporated into our high resolution mesoanalyses and nowcasting applications, measurably improving our ability to predict the weather over the UK. Going forward, there are plans to evaluate the impact of assimilating data in regional numerical weather prediction models, currently covering a "UKV" modelling domain equivalent to the British Isles and its surrounds.

This is also an active area of research and development within the meteorological community at both a European and global scale.

Our indicative requirements and objectives

Our objective is to significantly increase the number primarily of observed near-surface measurements of a variety of meteorological parameters by utilizing data from citizen weather stations in near-real time, supplementing the data from the ~300 Met Office automatic weather stations in the UK. We are especially keen to acquire data from the UK and Ireland, but also the full UKV domain (Figure 1 below) encompassing the area from

approximately 20°W to 16°E and 63°N to 45°S, including other countries such as France, Belgium and the Netherlands, as well as maritime areas if available (eg marine-based data):

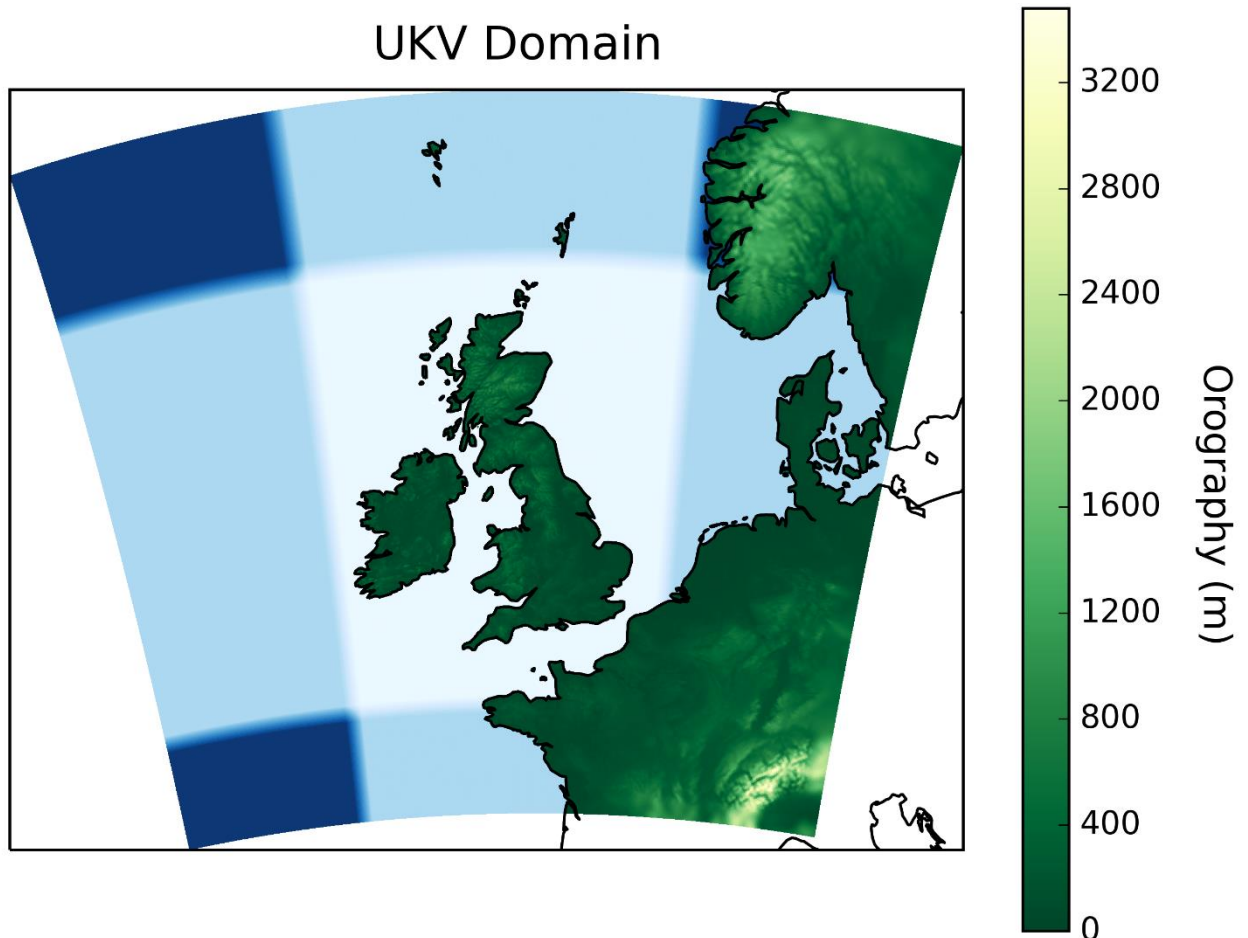


Figure 1: UKV model domain. This has a hybrid resolution grid which is 1.5 km over the inner domain covering the UK and Ireland and 4.5 km resolution towards the domain edges (20°W to 16°E and 63°N to 45°S)

The primary measurements of interest are air temperature, relative humidity, atmospheric pressure, wind speed and direction and rainfall. However additional measurements of visibility, snow depth, solar radiation and air quality are also of interest.

Information we are seeking from the market

In light of the information above, we are looking for information from organisations that may be able to support us by supplying our data requirements.

We are specifically looking for organisations to detail their capabilities in this market, to help us to understand what options may be available to us in determining the optimal solution in terms of cost, quality, and sustainability.

How to respond to us

If you'd like to submit a response to us, please do so by emailing your documentation to

aled-evans@metoffice.gov.uk . We're looking to receive submissions by **Monday 17th April 2023**.

If you require any further information to help you to submit a more meaningful response, please contact aled.evans@metoffice.gov.uk.

What we will do with this information

We will review what we have received from vendors to establish whether there is common ground, themes, trends. We will look at the IT security and data protection & licensing information which will guide how we set our requirements. Specifically, we are trying to unearth any areas that could be a problem or limiting factors on being able to achieve what we want to, so we can put measures in place to address those before issuing a tender, rather than being surprised at the tender return stage and wasting supplier's time.

We also need information about the size and appetite of the market, together with indicative cost information, for our business case to take this forward.

What the next steps might be

The Met Office may follow up your response by asking further questions or having a brief MS Teams meeting in order to understand your stated provisions and get the best understanding of the marketplace before any formal tender is issued. We may also ask for a sample of the data provided for information only at this stage.

We may run further market engagement activities with different specific sets of queries or share some suggested approaches to invite comment from potential suppliers on attractiveness and feasibility.

Once we are sure we have all the information we need, we will advertise our requirement formally for suppliers to submit tenders.

PLEASE NOTE –

this notice is an information gathering exercise rather than a call for competition, and therefore publication or response does not commit the Met Office or any respondents to a future procurement, nor provide any process exemptions or preferential treatment to any parties expressing an interest. The Met Office will not be liable for costs incurred by any interested party in participating in this exercise.

Information to Return

Please provide information on the following when you respond to this Early Market Engagement:

<p>Network coverage and density</p>	<p>Please outline and describe your data coverage for citizen weather stations over the UKV domain (see Figure 1) – coordinates broadly cover 20°W to 16°E and 63°N to 45°S. Alternatively please specify in terms of a list of countries or regions from which citizen weather station data are received.</p> <p>Please indicate explicitly the number of sites from which you currently receive data in the UK and Ireland</p> <p>An indication of your network coverage at a broader European and global scale would also be of interest.</p>
<p>Meteorological measurements required</p>	<p>Please outline data offering against the following observed parameters:</p> <ul style="list-style-type: none"> • The primary measurements of interest are: temperature, relative humidity, pressure, wind speed and direction and rainfall intensity & accumulation. • Additional measurements include: visibility, snow depth, solar radiation and air quality would also be of interest. • In addition metadata about the station location and local environment is also required. As a minimum this must include location (latitude and longitude) and the precision of the location must be stated (eg - 100 m or less). Sensor height (above the ground) and site exposure information would also be useful (e.g. proximity to buildings, fences and trees).
<p>Data formats and methods for receiving data and reporting frequency; Data Protection</p>	<ul style="list-style-type: none"> • What methods can be used to provide the Met Office with the required data? e.g. API, FTP etc. • What file formats can you provide data in? e.g. ASCII, csv, JSON, other raw data formats? • What is your expected speed of data provisioning after observation time for a citizen weather station location? • Reporting frequency is also of interest. Observations at 1, 5 or 15 minutes frequency are ideal, but observations made every hour or more frequently can be beneficial. Please indicate the typical range of reporting frequencies within the network. Ideally this would be presented as statistics on data receipt and available times, a distribution or similar. • In view of the above reporting frequency, could you tell us what a typical data volume would be that we might expect to receive across your data provisioning on a peak, hourly or daily time frequency basis • Data Protection: Could you articulate any data protection considerations you undertake around the data you provide and how your organisation complies with the Data

	Protection Act 2018?
Pricing	<p>How would you expect your pricing model to work for our requirement? E.g.</p> <ul style="list-style-type: none"> • Would you recommend a tiered approach, depending on the number of observations / volume of data provided? • What duration options / discount structures may be available? <p>Our preference would be that the data obtained through any future supply agreement would be covered by the World Meteorological Organisation's Unified Data Policy Resolution, meaning the Met Office would therefore have a duty to share data with other national meteorological services, notably including our partners in Europe (EUMETNET) and other WOW partners further afield.</p> <ul style="list-style-type: none"> • If we were to consider doing this, what onward sharing restrictions and/or costs would apply to license data?
IT Security	<p>The Met Office requires assurance that our data (and that of our partners and customers) is processed, held and stored securely in order to assure us of our obligations to the Data Protection Act 2018, relevant legislation, accreditations, best practice and compliance regimes within UK government.</p> <p>Any services Met Office may ultimately procure should be capable of demonstrating the principles of 'Security by design' and 'Security by default'. They will be handling information deemed as 'Official' under the Government Security Classification Scheme and require appropriate protection and assurance.</p> <ul style="list-style-type: none"> • At this stage, Met Office would like to understand what steps have you taken to make your solution robust from an IT security perspective in the context outline above? <p>For further information on this topic please see the following links: Government Functional Standard GovS 007: Security - GOV.UK (www.gov.uk) 10 Steps to Cyber Security - NCSC.GOV.UK Minimum Cyber Security Standard - GOV.UK (www.gov.uk) Security policy framework, May 2018 - GOV.UK (www.gov.uk) Government Security Classifications - GOV.UK (www.gov.uk) The cloud security principles - NCSC.GOV.UK NCSC CAF guidance - NCSC.GOV.UK Cybersecurity Framework NIST</p>

	National Cyber Security Centre - NCSC.GOV.UK
Network resilience and continuity of data provision	<ul style="list-style-type: none">• What resilience do you aim for in your service provision?• What resilience do you have in your collection and processing chain? For example, if you use a cloud supplier do you have parallel processing of all data across two different regions or cloud suppliers?