

EUBREWNET Updates

Alberto Berjón, Alberto Redondas, John Rimmer, Javier López-Solano, Francisco Parra-Rojas, Virgilio Carreño, Sergio F. León-Luis.



The brewer spectrometer:

Canadian instrument, Dobson replacement.

O₃, SO₂, Spectral UV, AOD and ozone profiles (Umkher).

Weather Services, Universities and Research Institutes 50 instruments around Europe independently managed.

Two private calibration companies.



The Eubrewnet are based on the iberonesia application developed since 1999 to support the Spanish / Portuguese brewers.

In 2008 were updated to IBERONESIA 2.0 with the objective to give support to the RBCC-E campaigns.

The support of the RBCC-E were transferred to EUBREWNET application since 2015 EUBREWNET/ RBCC-E campaign in Huelva.

www.iberonesia.net web page is not accessible since May 2017.



Main Page

RBCC-E

Regional Brewer Calibration Center - Europe
67 articles in English

[Iberonesia Network#](#)

Latest RBCC-E News



The **TENTH INTERCOMPARISON CAMPAIGN OF THE REGIONAL BREWER CALIBRATION CENTER-EUROPE (RBCC-E) and COST ACTION ES1207 EUBREWNET CAMPAIGN** will be held at *El Arenosillo* Atmospheric Sounding Station (Huelva, Spain) during the period May 26 to June 05, 2015.

All participants are requested to contact the campaign coordinators and fill in the [registration form](#) and [Internet Access](#). Please confirm your participation before April 15, 2015.

[Detailed Information Here.](#)

RBCC-E Activities. Work in progress

Past RBCC-E Intercomparison Campaigns

As a Regional Brewer Calibration Center for RA-VI region, RBCC-E performs regular intercomparison campaigns in Europe, mainly taking place in Central and South Europe. We provide for each of the participant instrument an ozone calibration report, linked below.

Event	Description	Date	Calibration Reports
Arosa 2014 (Switzerland)	Intercomparison Campaign	Summer 2014	Aro2014
Arenosillo 2013	Intercomparison Campaign	Summer	Aro2013

RBCC-E Programmed activities

Future RBCC-E Intercomparison Campaigns

Recently, the Regional Brewer Calibration Center for Europe, RBCC-E, has become involved in the European Space Agency (ESA) project named *CEOS Intercalibration of Ground-Based Spectrometers and Lidars*. Below are the programmed activities for the current year.

Event	Description	Date
El Arenosillo 2015	Brewer Intercomparison	Spring 2015

COST Action ES1207

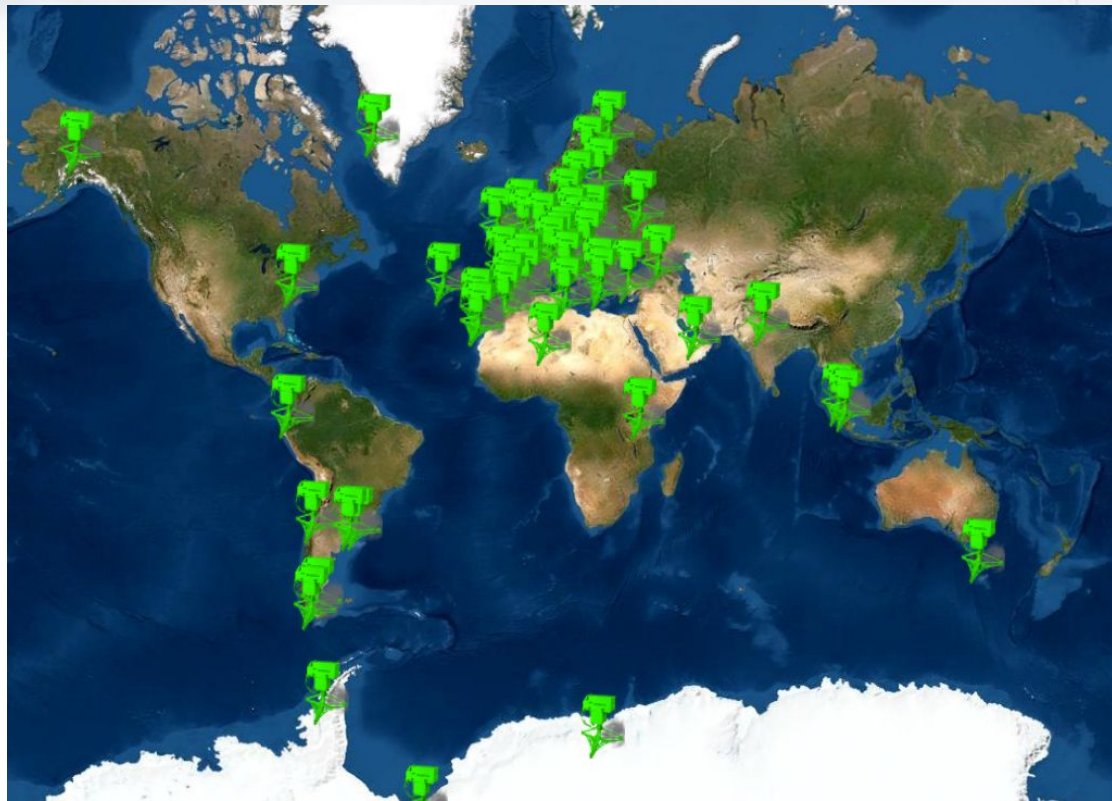
1 May 2013 – 30 April 2017

Participating Countries

Austria	Netherlands
Belgium	Norway
Czech Republic	Poland
Denmark	Portugal
Finland	Slovakia
Germany	Spain
Greece	Sweden
Hungary	Switzerland
Ireland	Turkey
Italy	United Kingdom

International Partners

World Meteorological Organization
York University, Canada
National Oceanic and Atmospheric Administration, ESRL/GMD, USA
Environment Canada, Canada
International Ozone Services
Office National de la Météorologie, Algeria



COST Action Objectives

- Automated data transfers to central database.
- Calibration data stored in central database.
- Site and instrument characterisation.
- Central data processing in addition to station processing.
- Central re-processing.
- Central QA/QC systems.
- Near real time data.
- Link to WOUDC.

EUBREWNET's Governance committee within the WMO SAG Ozone:

- John Rimmer (University of Manchester, UK)
- Alberto Redondas (Izaña Atmospheric Research Centre, AEMET, Spain)
- Tom Kralidis (WOUDC)
- Matthew Tully (O3 SAG Chair)
- Craig Sinclair (UV SAG Chair)

EUBREWNET's Management Committee:

- John Rimmer (University of Manchester, UK)
- Alberto Redondas (Izaña Atmospheric Research Centre, AEMET, Spain)
- Alkiviadis F. Bais (Aristotle University of Thessaloniki, Greece)
- Julian Gröbner (Physikalisch - Meteorologisches Observatorium Davos/World Radiation Center, Switzerland)
- Tomi Karppinen (Finnish Meteorological Institute, Arctic Research Center, Finland)

ET-ACMQ – A new Expert Team on Atmospheric Composition Measurement Quality

One of the objectives of these ET is to guarantee the quality of every GAW stored measurement:

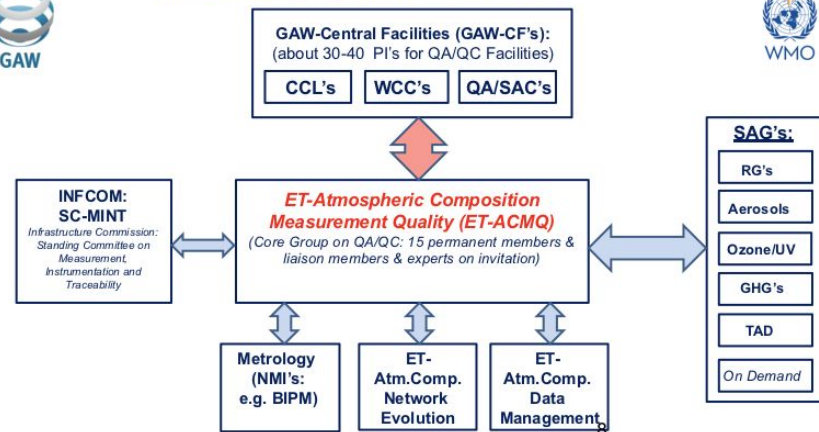
1. The measurement value is obtained following the SOP.
2. Overall Uncertainty is reported and the traceability uncertainty chain documented
3. Flag Code providing the state of processing /validation, reliability and representativeness.
4. Metadata sufficient for data reprocessing from raw data.

Concerning to the Brewer

- Introduction of the new cross-section and the temperature dependence.
- Uncertainty chain, traceability and metadata
- New instrumentation



Interaction ET-ACMQ within GAW-Infraestructure



28.09.20

ET-ACMQ as Part of GAW-Infrastructure / Herman G.J. Smit

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EuBrewNet activities that were coordinated at O3-SAG are now under the umbrella of the ET-ACQM, the Ozone task force will bridge the NDACC and EuBrewNet total ozone activities.

After the end of the COST action, AEMET is supporting EUBREWNET since February 2019 with two new staff positions through TragsaTec.

EUBREWNET's development and maintenance team:

- Alberto Redondas (Izaña Atmospheric Research Centre, AEMET, Spain)
- Virgilio Carreño (Izaña Atmospheric Research Centre, AEMET, Spain)
- Alberto Berjón (TragsaTEC, Spain)
- Javier López-Solano (TragsaTEC, Spain)
- Francisco Parra (Izaña Atmospheric Research Centre, AEMET, Spain)

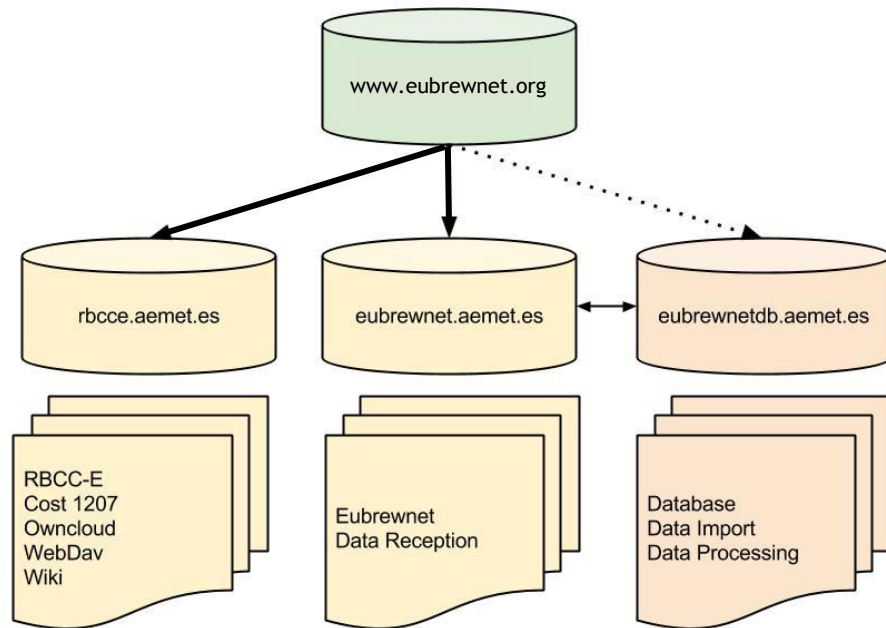
Collaborators

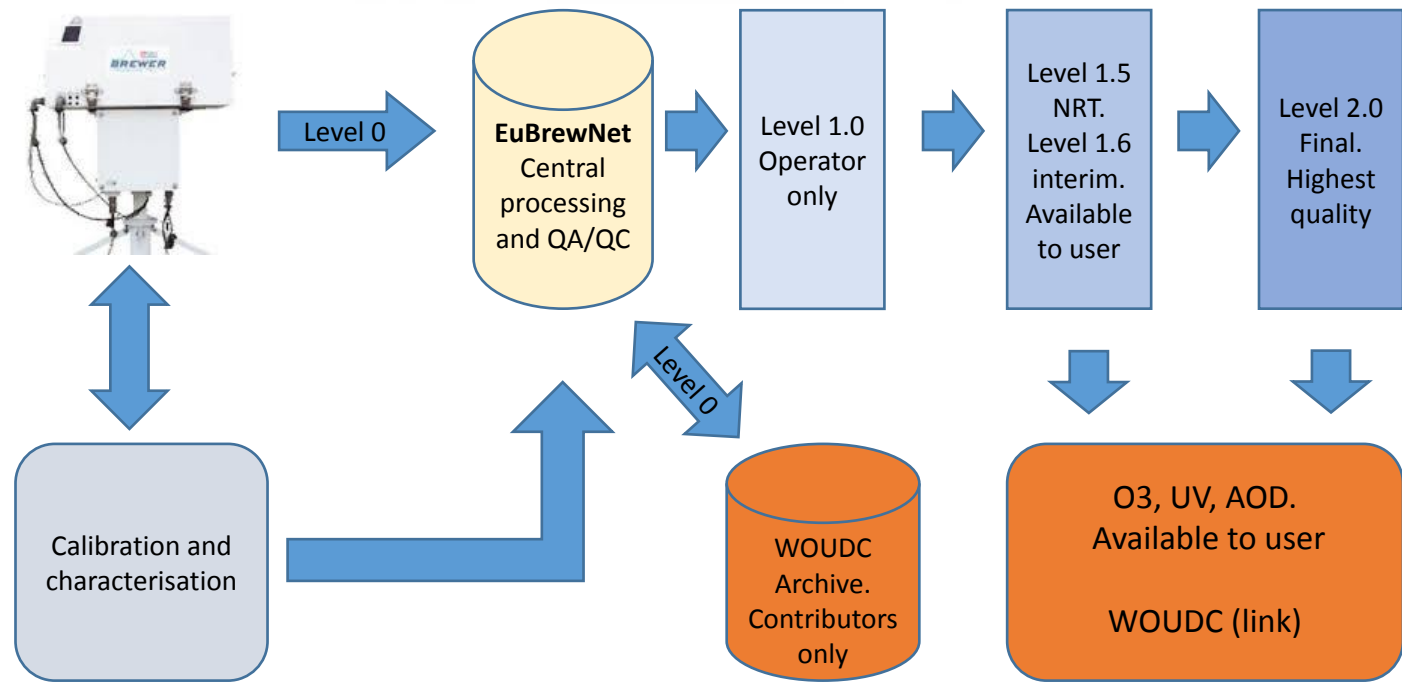
- Sergio F. León-Luis (Izaña Atmospheric Research Centre, AEMET, Spain)
- Daniel Santana López (LuftBlick Earth Observation Technologies, Innsbruck, Austria)

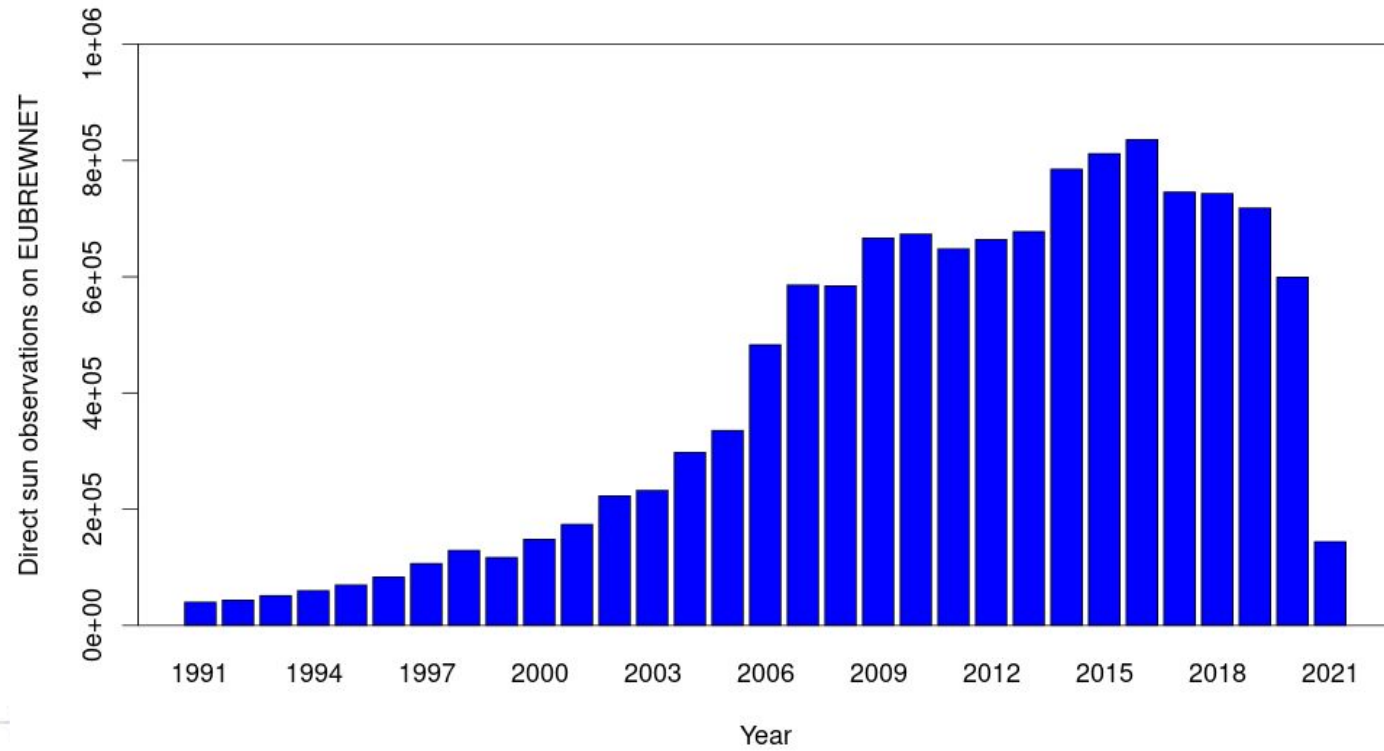
<http://www.eubrewnet.org>

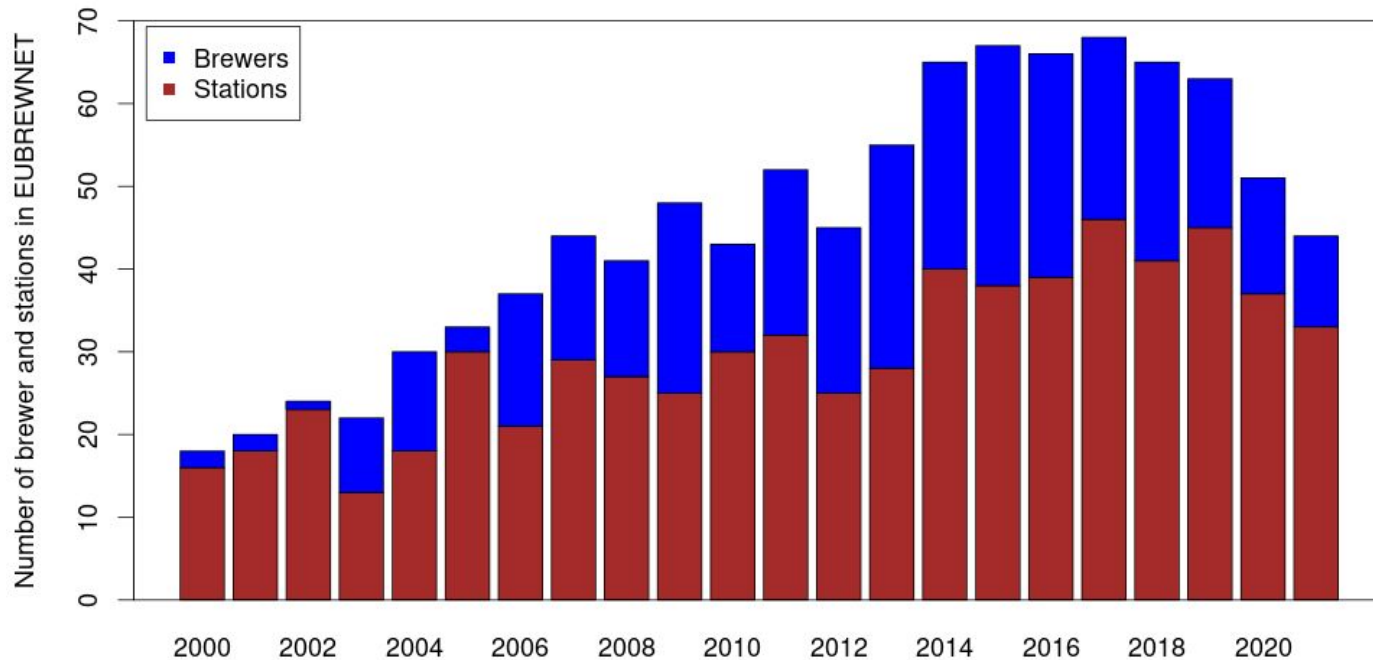
The Eubrewnet servers are running in AEMET in server farm.

Three servers. One supports the database and background process, the second supports the Eubrewnet web service and data reception and the last one the auxiliary web services: cost1207 web, webdav, documentation...



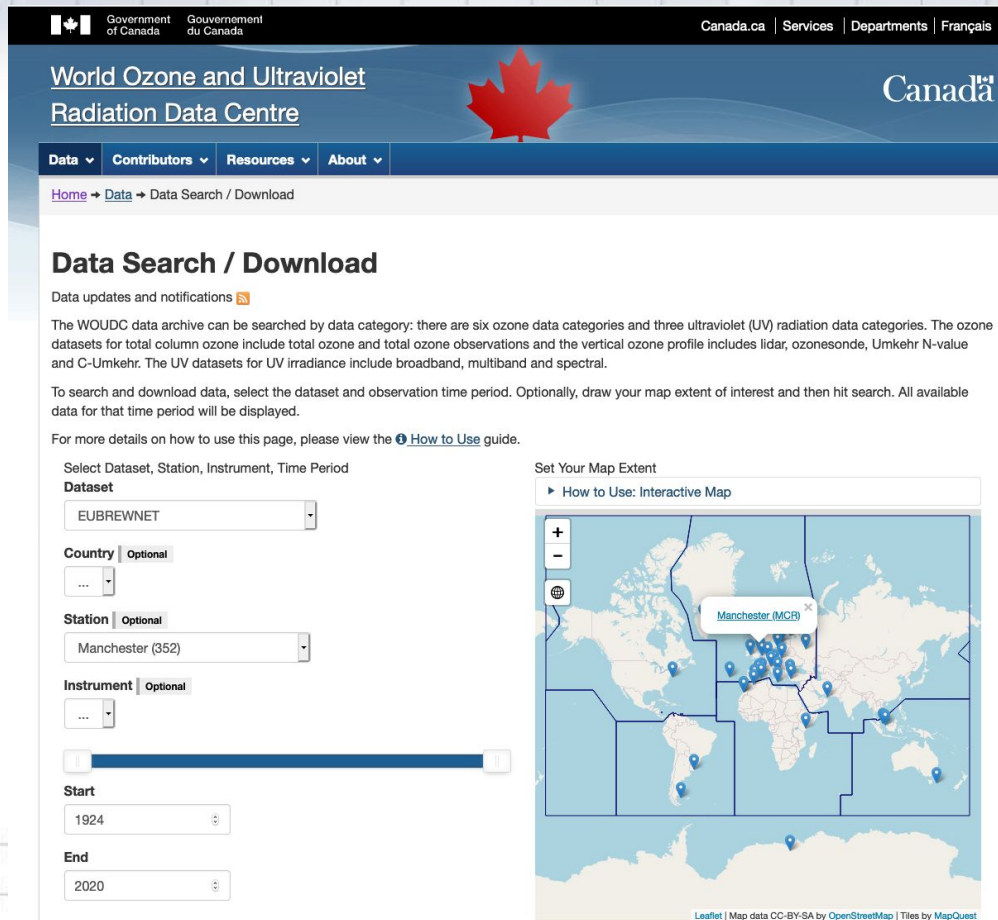







Agreements with other institutions:

- EuBrewNet observations linked in the WOUDC
- EuBrewNet-NDACC cooperative Agreement (just signed)
- Copernicus Agreement (In preparation)



The screenshot shows the WOUDC website interface. At the top, there are navigation links for 'Canada.ca', 'Services', 'Departments', and 'Français'. The main header includes the title 'World Ozone and Ultraviolet Radiation Data Centre' and the 'Canada' logo. A navigation menu contains 'Data', 'Contributors', 'Resources', and 'About'. Below the menu, a breadcrumb trail reads 'Home → Data → Data Search / Download'.

Data Search / Download

Data updates and notifications 

The WOUDC data archive can be searched by data category: there are six ozone data categories and three ultraviolet (UV) radiation data categories. The ozone datasets for total column ozone include total ozone and total ozone observations and the vertical ozone profile includes lidar, ozonesonde, Umkehr N-value and C-Umkehr. The UV datasets for UV irradiance include broadband, multiband and spectral.

To search and download data, select the dataset and observation time period. Optionally, draw your map extent of interest and then hit search. All available data for that time period will be displayed.

For more details on how to use this page, please view the [How to Use](#) guide.

Select Dataset, Station, Instrument, Time Period

Dataset

Country | Optional

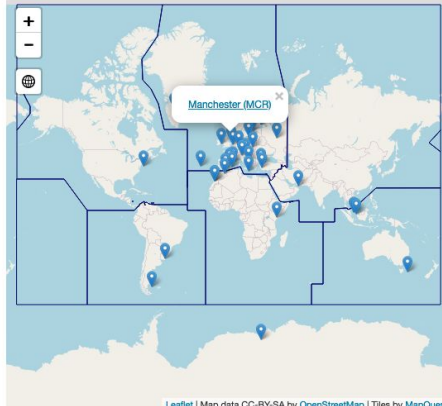
Station | Optional

Instrument | Optional

Start

End

Set Your Map Extent
 ▶ How to Use: Interactive Map



The map shows a world view with a focus on Europe. A blue box highlights the Manchester region, with a label 'Manchester (MCR)' and a cluster of blue location pins. The map includes standard navigation controls like zoom in (+), zoom out (-), and a location pin icon.

Leaflet | Map data CC-BY-SA by OpenStreetMap | Tiles by MapQuest

Network for the Detection of Atmospheric Composition Change

Agreements with other institutions:

- **EuBrewNet observations linked in the WOUDC**
- **EuBrewNet-NDACC cooperative Agreement (just signed)**
- **Copernicus Agreement (In preparation)**

Home / About NDACC / Cooperating Networks

About NDACC






- About NDACC
- Organizational System
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- Cooperating Networks
- NDACC Perspectives
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Cooperating Networks

The NDACC recognizes that there are important regional, hemispheric, or even global measurement and analysis networks that operate instruments independently of NDACC, but where strong measurement and scientific collaboration is mutually beneficial. Designation of an interested external network as a "Cooperating Network" fosters the desired collaborative measurement and analysis activities through mutual data access and mutual steering group representation, yet retains the independence of each network.

More information on the Cooperating Network Protocol is found in the "Protocols" area of the NDACC web pages.

Information about each Cooperating Network can be found at the "Cooperating Network" portion of the NDACC Measurements and Analyses Directory, or at the Network external webpages as listed below.

	AERONET Aerosol Robotic Network Visit website
	AGAGE Advanced Global Atmospheric Gases Experiment Visit website
	BSRN The Baseline Surface Radiation Network Visit website
	EuBrewNet European Brewer Network Visit website
	GRUAN GCOS Reference Upper-Air Network Visit website

Cooperating Network Agreement between NDACC and EUBREWNET

NDACC	European Brewer Network (EUBREWNET)
NDACC Steering Committee Co-Chair: Martine De Meirae Institut royal de Mécanique Spéciale de Belgique (IRMA-IAIR) Ringelstraat Avenue Copernicus, 3 3-110 Brussels Belgium Phone: +32 (0) 2737 24 00 E-Mail: Martine.DeMeirae@irmaoma.be	European Brewer Network Co-Chair: John Rimmer Department of Earth and Environmental Sciences Centre for Atmospheric Science Room 10.10.0 University of Manchester Oxford Road Manchester M13 9PL UK Phone: +44 (0)161 275 3406 Email: john.rimmer@manchester.ac.uk
Anne M. Thompson Atmospheric Chemistry, CofC 610 Earth Science Division NASA Goddard Space Flight Center 8823 Greenbelt Road Greenbelt, MD 20771-0201 USA Phone: +1 301 614 9903 E-mail: Anne.M.Thompson@nasa.gov	Isabel Alcala Moreno Iberia Atmospheric Research Centre Iberia Meteorological Agency of Spain (AEMET) C/ La Mancha, 26, 4ª Planta 38201 Bozta Ciudad Tenerife Spain Phone: +34 922 131 718 E-mail: andrea.alcala@aemet.es

Basic Agreement

This agreement has no legally binding terms or conditions. Rather, it is intended as a guideline to maintain an scientific collaboration between the Network for the Detection of Atmospheric Composition Change (NDACC) and the European Brewer Network (EUBREWNET) through a formally documented data-exchange program. The primary purpose of each Network is to provide independent information on the detection, distribution, and trends of atmospheric trace gases, with an emphasis on the links and feedbacks between changes in atmospheric composition, climate, air quality, health of the ozone layer, and UV exposure. We agree that, when appropriate, EUBREWNET and NDACC contributions should be mutually referenced in publications, brochures, and webpages, and that this reference should include the individual Principal Investigators (PI) who produce the data.

Data Ownership

While each Network is responsible for its own data and quality protocols, the principal agree to adhere to the following data-exchange guidelines. If either party does not meet any of these conditions, the other party may withdraw from this agreement. These guidelines are contingent on the availability of adequate resources to implement them.

1. Publicly available data may be used freely, following the already established data policies of each Network. The EUBREWNET and NDACC data policies are available on their respective websites (<https://www.eubrewnet.org> and <http://www.ndacc.org>). In short, co-

<http://www.ndaccdemo.org/about/cooperating-networks>

Data Versions.

- Version 1 - Brewer standard algorithm.
- Version 2 of the EUBREWNET algorithm will account :
 - Use of Bremen cross section
 - Include ozone effective height and temperature
 - Update Rayleigh coefficients to Bodhaine (1999)

Data Version 2

Values to be submitted

O3 SO2
Umkehr
Data and Metadata
NO2

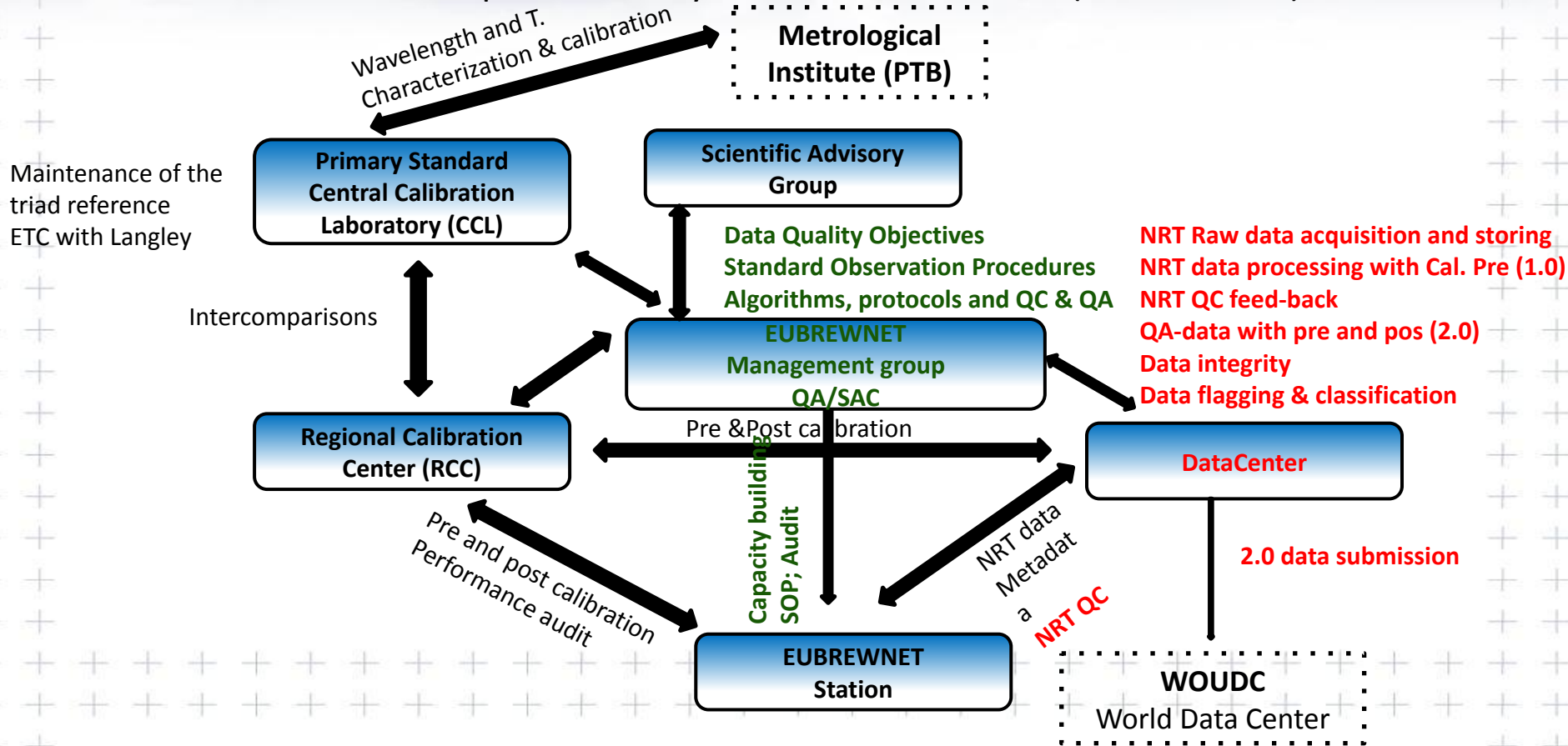
Setup
Algorithm
Instrumental Constants
O3 V2 Algorithm

DS V2 Setup

Ozone V2	ETC O3	O3 Ratio on O3	O3 Ratio on O3 delta	abs. coeff. temp. C0	abs. coeff. temp. C1	abs. coeff. temp. C2
	1610.0	0.34616	0.00858	0.347065	1.8075e-05	-4.67785e-05
Rayleigh Coefficients V2	BE0	BE2	BE3	BE4	BE5	BE6
	5049.97	4831.45	4584.25	4370.68	4178.28	4001.86
Height and temperature effective function	Function					
	ht_eff_toms ▼					

http://rbcce.aemet.es/eubrewnet/data/process.json/O3L1_5_V2?brewerid=185&date=2019-08-25&configid=1597

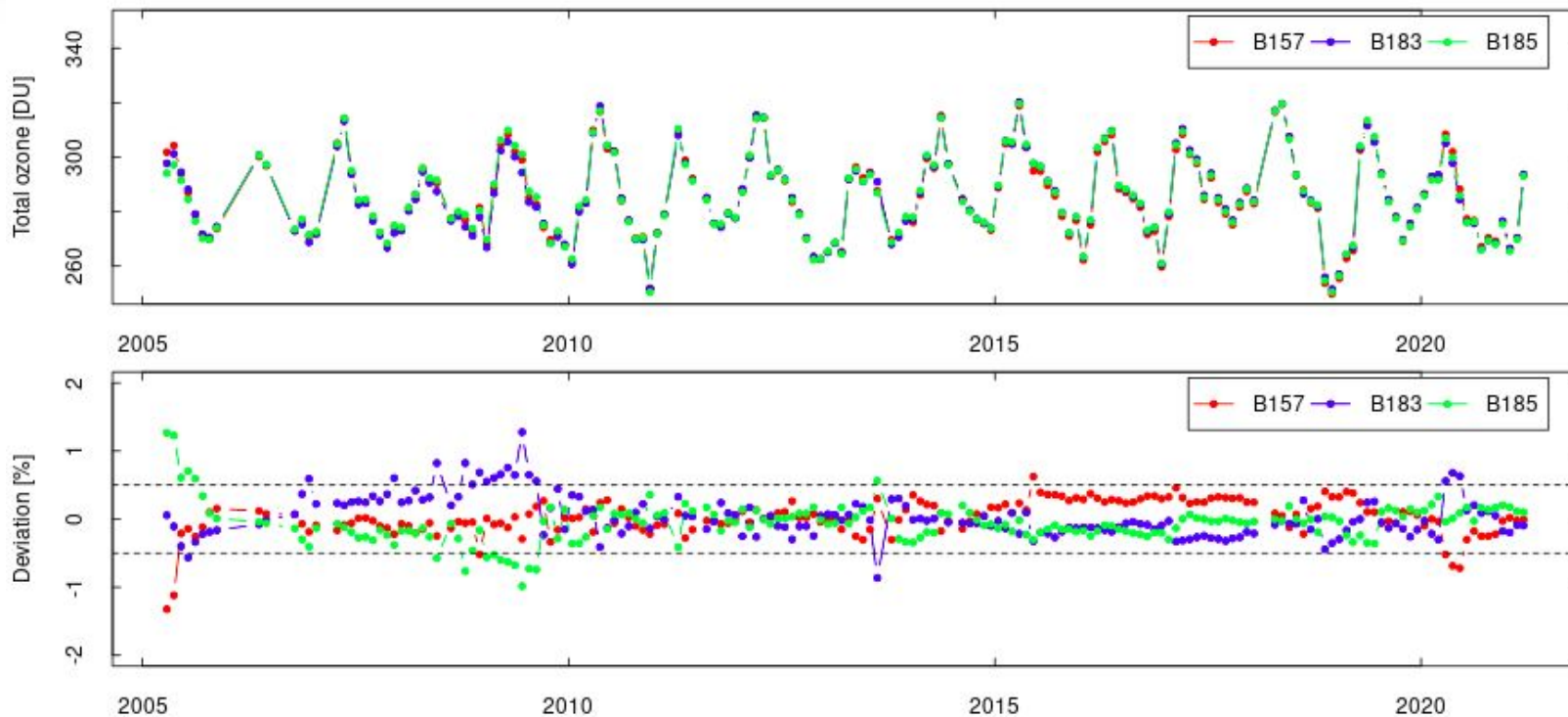
An example: QA/QC system in TOTAL OZONE (EUBREWNET)

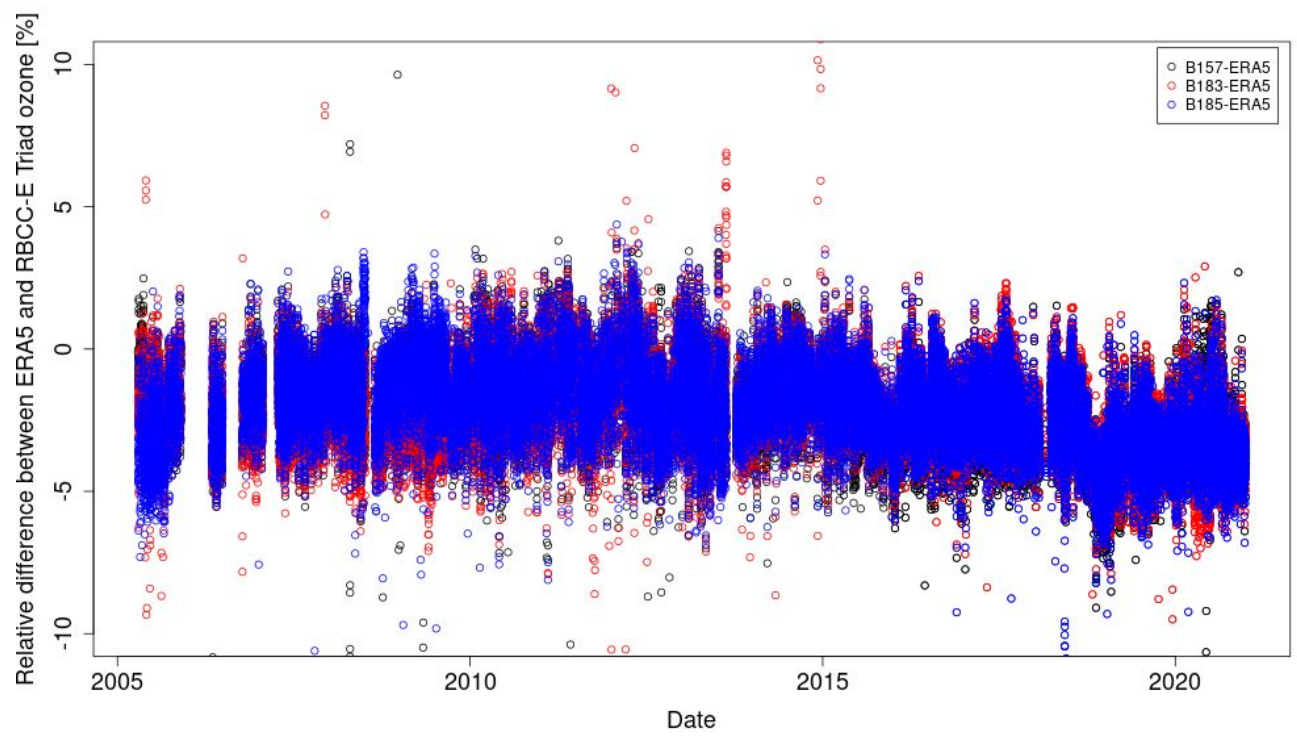


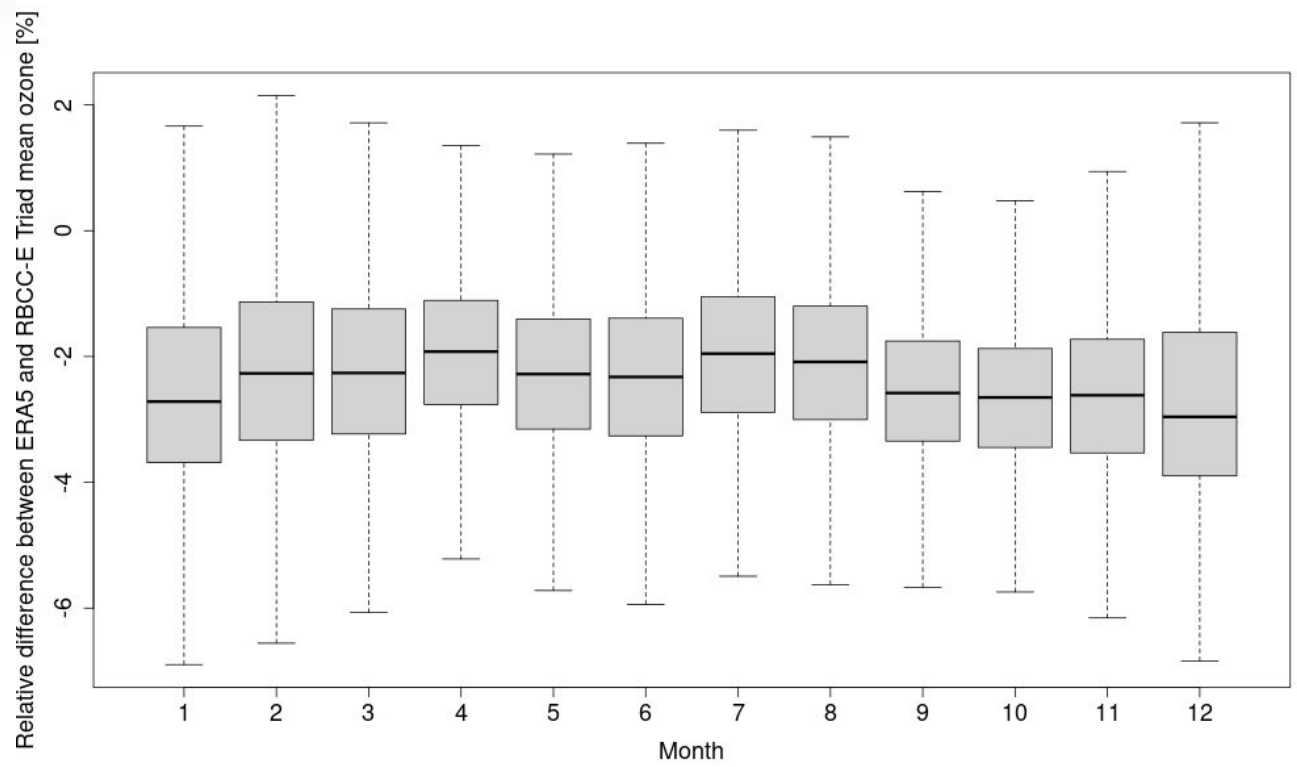
An example: QA/QC system in TOTAL OZONE (EUBREWNET)

Exclusion List

2020-06-26 00:00:00, 2020-06-26 23:59:00, no SL and large ozone outliers
2020-07-04 10:00:00, 2020-07-04 11:20:00, no SL and large ozone outliers
2020-07-05 10:00:00, 2020-07-05 12:00:00, no SL and large ozone outliers

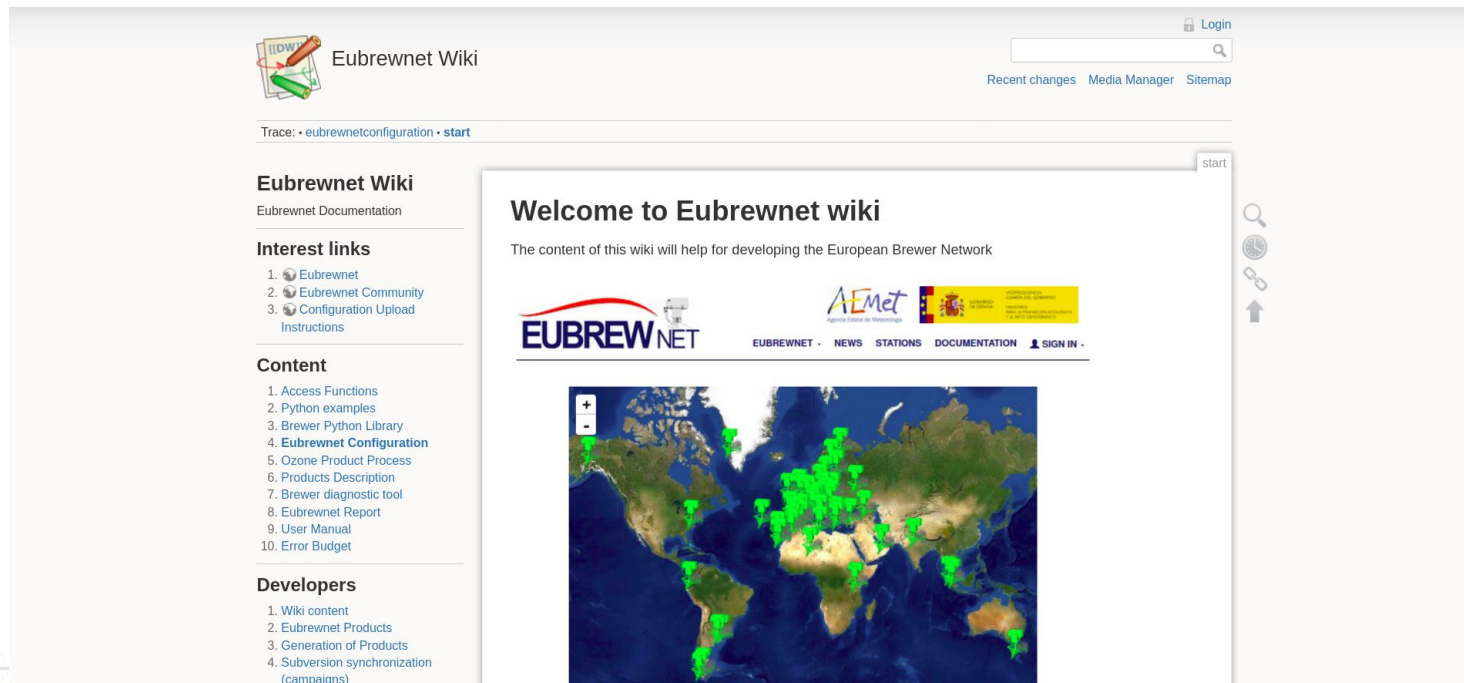






Capacity building.

<http://rbcce.aemet.es/dokuwiki/doku.php>



The screenshot shows the Eubrewnet Wiki homepage. At the top left is the Eubrewnet Wiki logo. To the right is a search bar and a 'Login' button. Below the search bar are links for 'Recent changes', 'Media Manager', and 'Sitemap'. The main content area features a 'Welcome to Eubrewnet wiki' message, stating that the content will help with developing the European Brewer Network. Below this is a navigation bar with the Eubrewnet logo and links for 'EUBREWNET', 'NEWS', 'STATIONS', 'DOCUMENTATION', and 'SIGN IN'. A world map with green location markers is displayed below the navigation bar. On the left side, there are three sections: 'Interest links' with links to Eubrewnet, Eubrewnet Community, and Configuration Upload Instructions; 'Content' with a list of 10 items including Access Functions, Python examples, Brewer Python Library, Eubrewnet Configuration, Ozone Product Process, Products Description, Brewer diagnostic tool, Eubrewnet Report, User Manual, and Error Budget; and 'Developers' with links to Wiki content, Eubrewnet Products, Generation of Products, and Subversion synchronization (campaigns).

Eubrewnet Wiki

Trace: • eubrewnetconfiguration • start

Eubrewnet Wiki
Eubrewnet Documentation

Interest links

- Eubrewnet
- Eubrewnet Community
- Configuration Upload Instructions

Content

- Access Functions
- Python examples
- Brewer Python Library
- Eubrewnet Configuration**
- Ozone Product Process
- Products Description
- Brewer diagnostic tool
- Eubrewnet Report
- User Manual
- Error Budget

Developers

- Wiki content
- Eubrewnet Products
- Generation of Products
- Subversion synchronization (campaigns)

Welcome to Eubrewnet wiki

The content of this wiki will help for developing the European Brewer Network

EUBREW NET

EUBREWNET - NEWS STATIONS DOCUMENTATION SIGN IN

World map showing Brewer network stations (green dots).

How EuBrewNet supports monitoring in A5 countries.

- The operator courses cover care and maintenance, scheduling, principles of operation and data management.
- The importance of regular calibration is emphasised.
- Calibration data can be stored in EuBrewNet database.
- Software can be installed to enable automatic transfer of raw data to the EuBrewNet database for QA/QC and processing into NRT products.
- Once set up – ***higher submission rates.***

Capacity building.

- Operator training Courses.
 - Tenerife, March 2014
 - Huelva, June 2015
 - Edinburgh, Sept 2016
 - Sydney, Sept 2017
 - Huelva, June 2019



FIRST ANNOUNCEMENT

THE XVI INTERCOMPARISON CAMPAIGN OF THE REGIONAL BREWER CALIBRATION CENTER-EUROPE

Will be held at “El Arenosillo” Atmospheric Sounding Station, INTA

(Huelva, Spain) September 6th to 16th, 2021

Dear Brewer spectrophotometer user community,

This is an invitation to participate in the XVI Regional Brewer Calibration Center for Europe (RBCC-E) intercomparison that will be held at El Arenosillo Atmospheric Sounding Station of the “Instituto Nacional de Técnica Aeroespacial” (INTA) during the period 6 – 16 of September 2021. This campaign is organized in collaboration with the “Atmospheric Research and Instrumentation Branch” of INTA, with the support of the Global Atmospheric Watch (GAW) program of the World Meteorological Organization (WMO).

eubrewnet@aemet.es

Acknowledgements



Universidad de La Laguna



Environment Canada



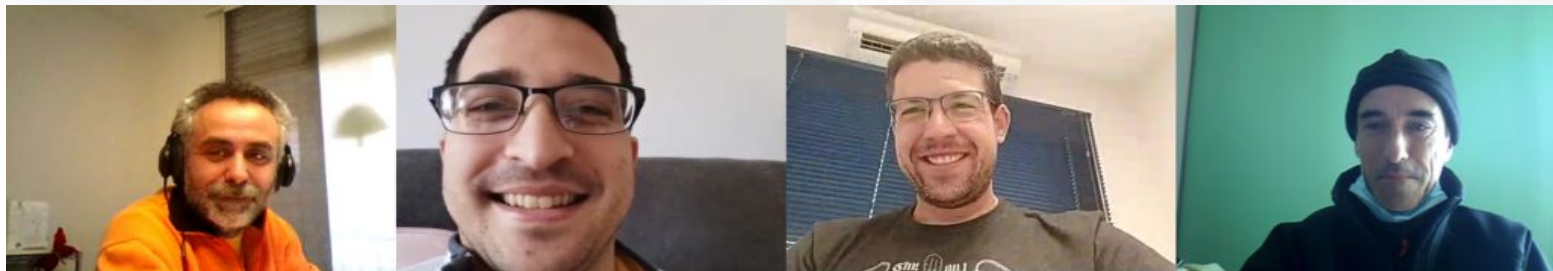
Grupo Tragsa



International Ozone Services



Department for Environment Food & Rural Affairs



Thank you!

