Prototype QA/Validation service for Atmosphere ECVs: Web based prototype

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<tr>
<td>Authors</td>
<td>Bruno Rino (S[&amp;]T), Sander Niemeijer (S[&amp;]T), Steven Compernolle (BIRA-IASB), Jean-Christopher Lambert (BIRA- IASB)</td>
</tr>
<tr>
<td>Editors</td>
<td>Bruno Rino (S[&amp;]T), Sander Niemeijer (S[&amp;]T)</td>
</tr>
<tr>
<td>Reviewers</td>
<td>Folkert Boersma (KNMI), Andreas Richter (IUP-UB), Tijl Verhoelst (BIRA-IASB)</td>
</tr>
<tr>
<td>Contacts</td>
<td><a href="mailto:bruno.rino@stcorp.nl">bruno.rino@stcorp.nl</a>, <a href="mailto:niemeijer@stcorp.nl">niemeijer@stcorp.nl</a></td>
</tr>
<tr>
<td>URL</td>
<td><a href="http://www.qa4ecv.eu/">http://www.qa4ecv.eu/</a></td>
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Executive Summary / Abstract

A Prototype for QA4ECV Validation Server using a sample of preliminary subset of data produced within the QA4ECV project has been made publicly available at https://qa4ecv-dev.stcorp.nl/ on December 23, 2016.

This document details the setup and features included in the prototype at the time of writing. In the near future, within the context of the QA4ECV project, the Validation Server will be moved to a different location, receive more features, and more data will be made available. At such a time the URL will be updated too.
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1. Prototype Setup

For this prototype, a small subset of the QA4ECV data has been used. The subset was defined according to the availability of data.

1.1 Reference dataset (WP3)

The reference datasets are not yet ready (neither final nor complete). BIRA-IASB provided preliminary versions for tropospheric NO2 and HCHO.

The reference dataset is NDACC MAXDOAS tropospheric NO2 re-processed by BIRA-IASB for the QA4ECV project, for the following locations:

<table>
<thead>
<tr>
<th></th>
<th>latitude [deg]</th>
<th>longitude [deg]</th>
<th>altitude [m]</th>
</tr>
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<tr>
<td>Athens</td>
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<td>0.527</td>
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<td>8.8494</td>
<td>0.02</td>
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<td>Bujumbura</td>
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<td>29.38</td>
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<tr>
<td>Uccle</td>
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<td>4.36</td>
<td>120</td>
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<tr>
<td>Xianghe</td>
<td>39.75</td>
<td>116.96</td>
<td>94</td>
</tr>
</tbody>
</table>

Note: these datasets were provided directly by BIRA-IASB as they are not yet publicly available.

1.2 Satellite dataset (WP4)

The satellite dataset is Aura/OMI QA4ECV NO2 1.0 processed by KNMI for the QA4ECV project, available at http://www.qa4ecv.eu/ecv/no2-pre/data. Other WP4 datasets were not yet available.

Due to disk space constraints on the current server, a single year was used; 2015 was chosen for having the best overlap with the current reference data.

2. Website user interface

2.1 Choosing a report

Reports are defined by:

- ECV / Species
- Satellite instrument
- Ground station

These are the three choices to be made in the user interface. As mentioned before, the data processed currently is limited to a small subset of the QA4ECV datasets, and as such there is currently only one possible value for first two choices. And only five stations for the third:
Choosing a report clicking its title on the “Matched reports” list will open the report.

### 2.2 Report page

Each report contains:

- A time series displaying both datasets ECV measurement, including uncertainties when available
- A time series displaying the difference between measurements, including uncertainties when available
- A correlative plot where the data on each axis is configurable
- A correlative plot with both datasets ECV measurement
- A table listing the intercomparison parameters.

Plots are interactive; one can zoom in and out, hover points to see more detail. There are options to download the plot as an image file. Each plot has settings to select what data is being plotted, and to download the datasets in netCDF format.
Figure 2 – Sample plots taken for tropospheric NO2: OMI vs. MAXDOAS at Bremen. Uncertainty, when available, is represented with error bars

At the bottom of the page the intercomparison parameters are displayed; these include:

- Custom filters: beyond simple quality flag checking, datasets can be further filtered
- Collocation criteria: the parameters used for the collocation algorithm

3. Next developments

Within the context of QA4ECV, the prototype will be further updated, with focus on:

- Ingestion of all QA4ECV Atmosphere datasets and years
- Data Content Study
- Information Content Study
- Educational aspects
- Website navigation
4. Terms and definitions

4.1 Abbreviations and acronyms

ECV  Essential Climate Variable

QA4ECV  Quality Assurance for Essential Climate Variables (EU FP7 project, February 2014 – January 2018)

REF  Reference dataset

SAT  Satellite dataset