Status of the operations at the WCC-NOx

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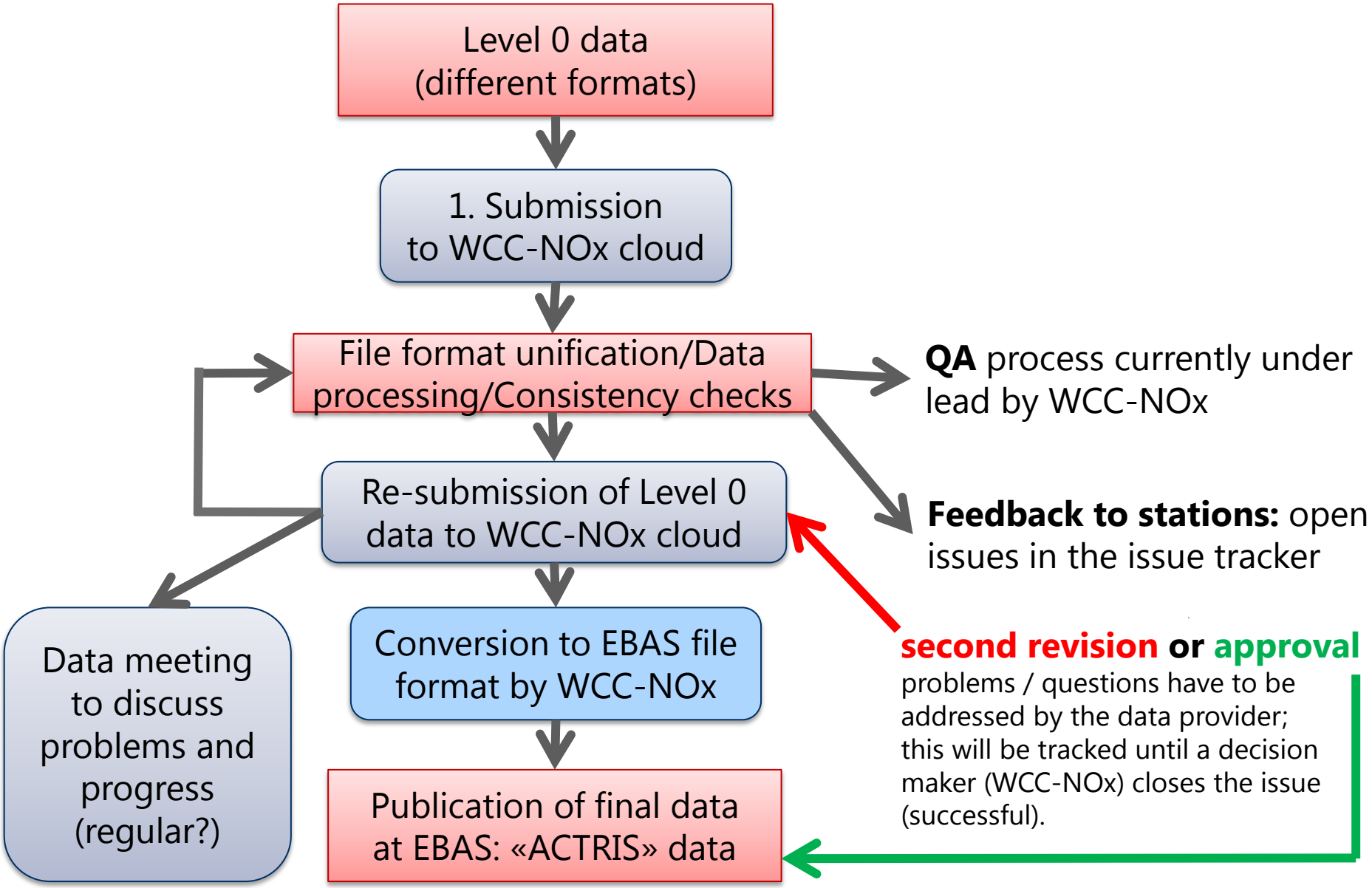
Time schedule of major events:

- Final implementation of the MoU to set up the WCC-NOx by WMO (March 2014)
- Participation in the definition of SOPs for NOx (since 2009)
- Participation in a NOx-intercomparison at the GAW station MOHp
- Implementation of a VOC and NOx workshop (Jülich, Nov 2014)
- Set-up of a small-sized infrastructure in Jülich for the quality control of NOx data from GAW stations (in progress)

Current Data flow ACTRIS-2 for NOx



Current Data flow ACTRIS-2 for NOx

Level 0 data
(different formats)

- Each station has its original data in different formats, including meta-data like temperature, humidity, ozone, global radiation, photolysis of NO_2.
- Formats span EBAS, Excel, ASCII
- Sometimes more then one file per year
- Meta-data sometimes in additional files

Current Data flow ACTRIS-2 for NOx

1. Submission
to WCC-NOx cloud

The data in its original file format is send to WCC-NOx by email, link, or download to the WCC-NOx-cloud. There it is transferred from the „IN“ folder (for documentation issues) to the „OUT“ folder (for processing).

Current Data flow ACTRIS-2 for NOx

File format unification/Data processing/Consistency checks

- Masks for the usage of different file formats are implemented and the data stored in a unified file format
- The validity of the data are checked by the preparation and inspection of standardized time series plots
- Simple consistency checks are done using average diurnal viewgraphs of seasonal viewgraphs
- Numerical resolution issues are inspected
- “Cutting” of data below zero will be commented on

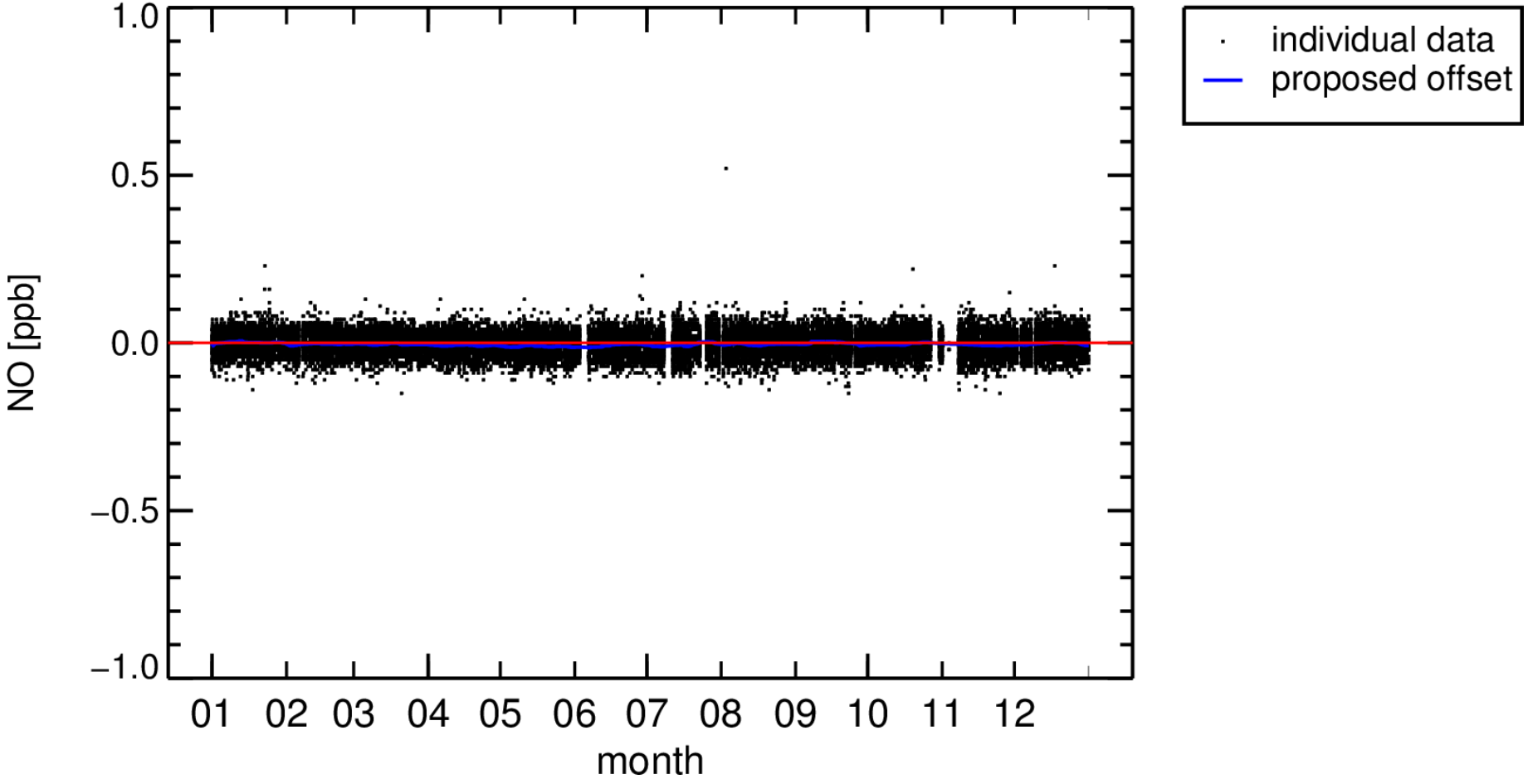
Current Data flow ACTRIS-2 for NOx

File format unification/Data processing/Consistency checks

- NO data during night time are used to determine offset problems. A time series for these offsets are generated and a revised data set prepared. These can be used for a second submission step by the stations. The offset-magnitude varies between zero and, sometimes, the ppb range.

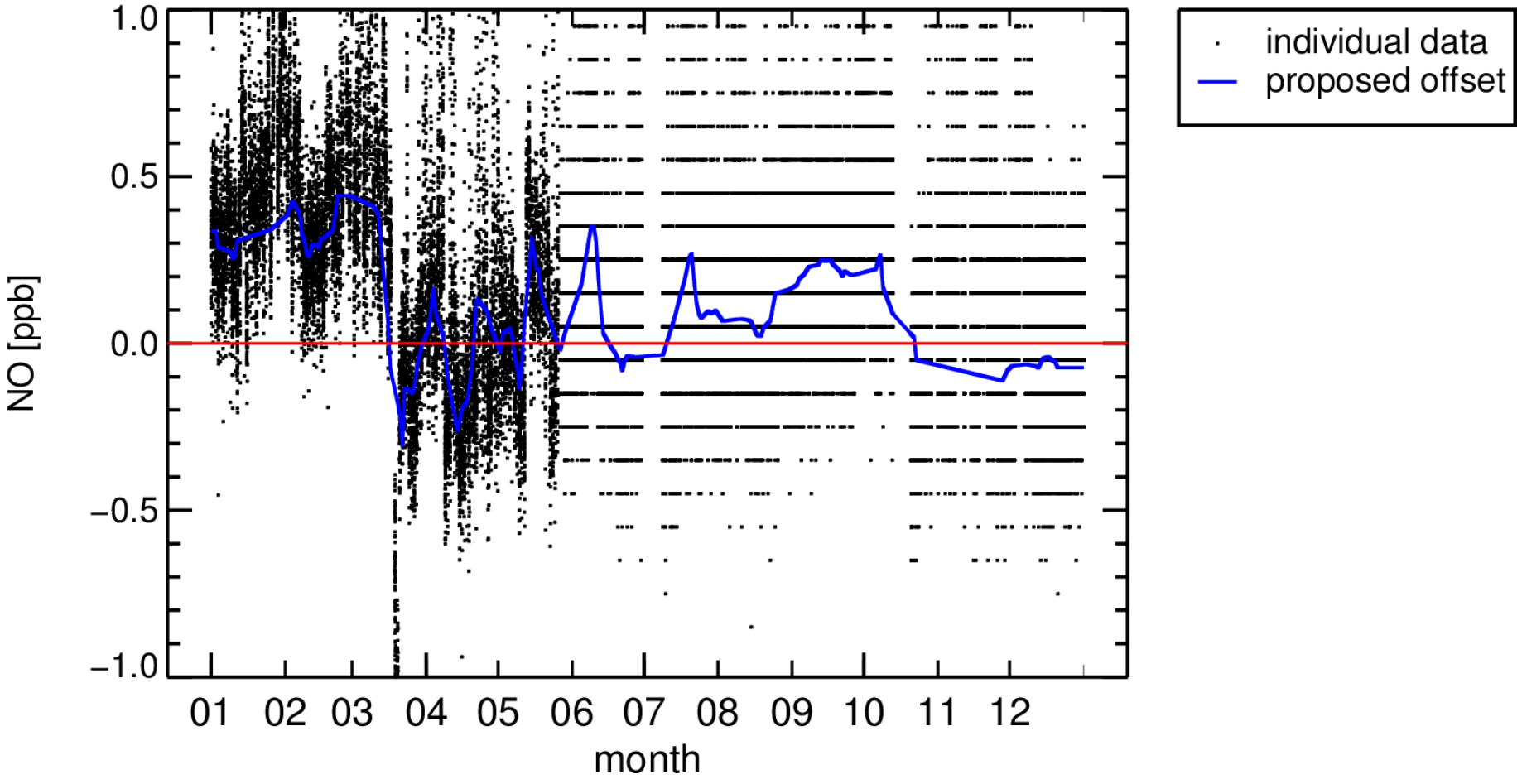
Station data: NO-offset determination

(a station without offset problems)



Station data: NO-offset determination

(a station with offset and numerical resolution problems)

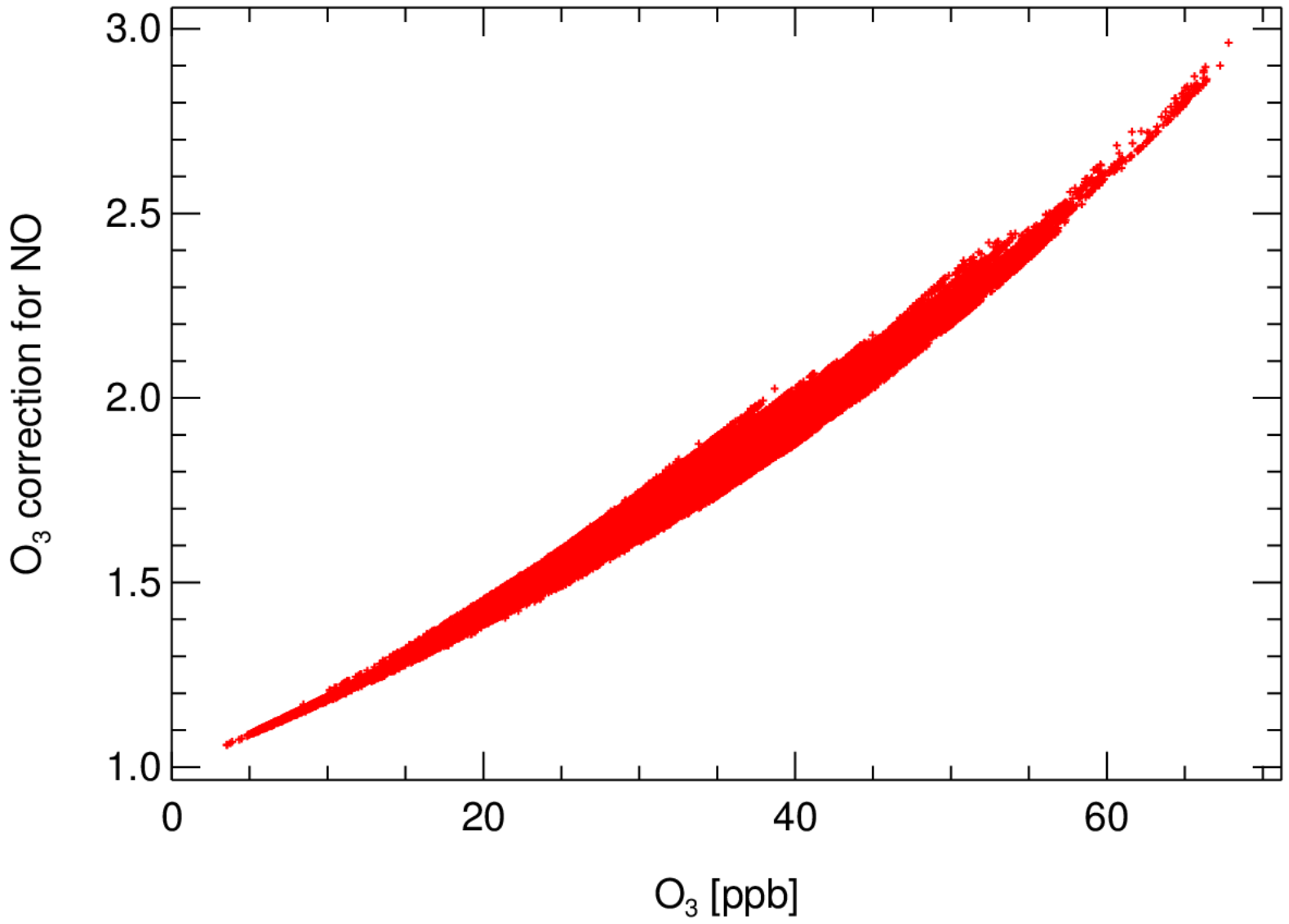


Current Data flow ACTRIS-2 for NOx

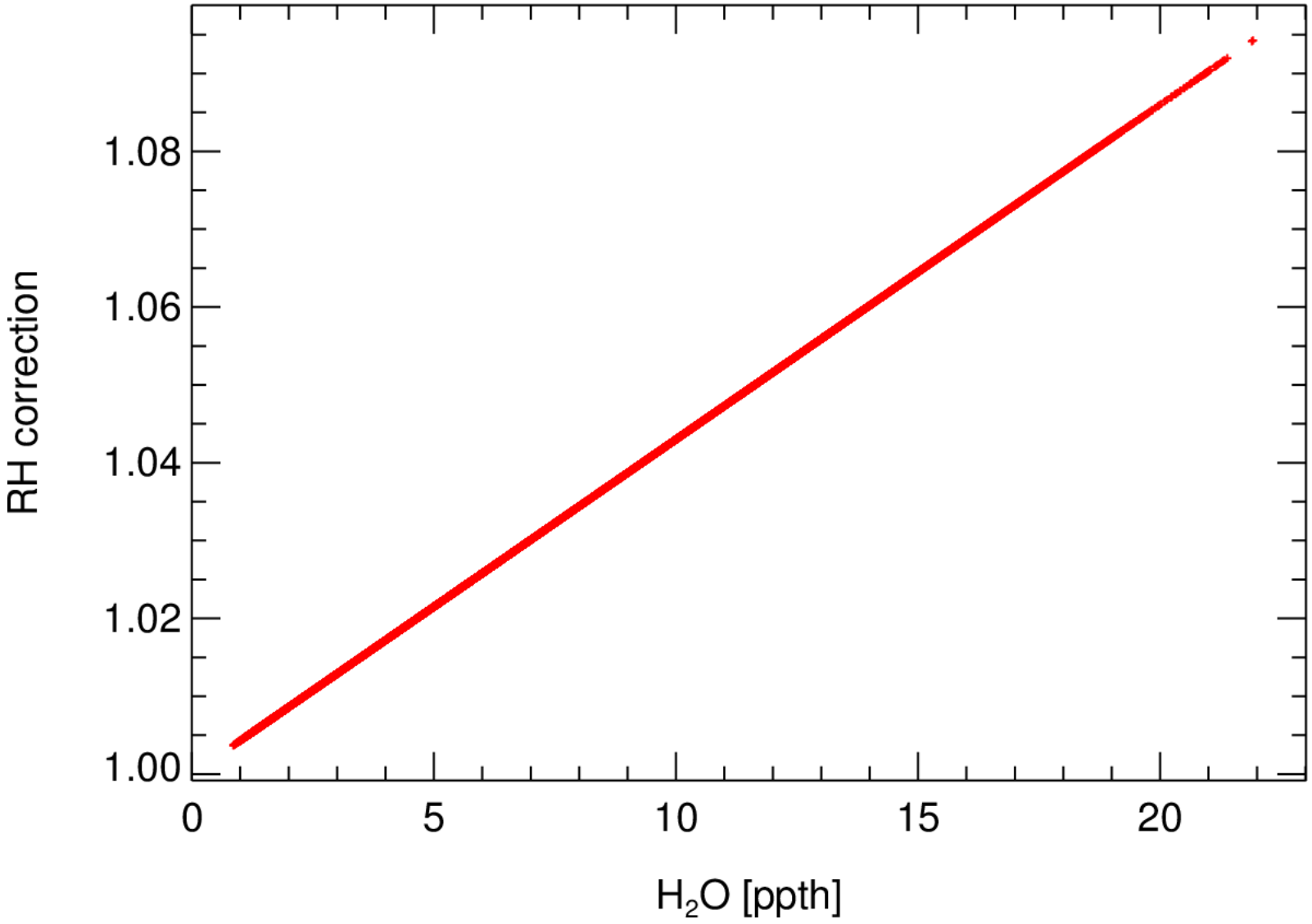
File format unification/Data processing/Consistency checks

- The "inlet-line correction check" is currently done in two forms: either a check of the correction done by the station or doing the correction by WCC-NOx; both are documented by viewgraphs
- The algorithm for the correction is difficult and its implementation by a station leaves much room for errors.
- The magnitude of the correction is in the range minimum 5%, maximum 300%, taking the already processed stations as a guide line.

Station data: ozone correction factor for NO



Station data: humidity correction factor for NO and NO_2



Current Data flow ACTRIS-2 for NOx

File format unification/Data processing/Consistency checks

- The task "consistency checks" will be expanded in the future to contain a NO/NO_2-check, if O_3 and JNO_2 or global radiation are available from the station.
- The preparation of the tools is a time-consuming and demanding task and will be done after a first round of QA checks for all stations.

Current Data flow ACTRIS-2 for NOx

2. Submission of Level 0 data to WCC-NOx cloud

- The offset time series, the revised data set, the inlet line correction results (viewgraphs) are documented in the “OUT” folder of the station.
- A text file with comments and the major findings are also provided here.

Current Data flow ACTRIS-2 for NOx

Conversion to EBAS file format by WCC-NOx

- This service is not yet implemented and has yet to be discussed.
- It would be an ancillary service; each station would have to approve this step and the final result.
- It has to be discussed, who would send-in the data to EBAS. WCC-NOx offers to do it, but it would be also possible that final EBAS-format files are provided by WCC and then approved and send-in by the principal investigators of a station.