IVS pilot project on station feedback and benchmarking

Chairs: Lucia McCallum and Susana Garcia Espada (IVS Network Representatives), March, 2025

Purpose

Healthy stations are the backbone of the IVS and its products. Hereby 'health' means good performance, i.e. reliable and high-quality observations, as well as funding health and backing of a strong stakeholder.

The purpose of this pilot project is to assist the IVS network stations in

(a) Identifying issues at their stations affecting performance and
(b) Providing statistics of the stations about number (and to a certain degree quality) of observations, together with simple benchmarking against the IVS network.

Justification

Today, the involvement of a station often ends after data recording and it being sent off to the correlator. If there happens to be an issue affecting the data, feedback to stations is significantly delayed (several months) and not at all structured.

Most stations need to report back to their funder/stakeholder about number of observed sessions and even if they are reaching basic performance metrics. Yet, the IVS does not define performance metrics, leaving many stations in limbo. Fact is that work is happening at multiple stations to develop code deriving statistics and performance for individual stations. At the moment, all this work and manpower is put in at individual stations and (station-specific routines) are difficult to share or implement for the whole IVS network.

There are also stations having a funding model that is based on "we strive to perform to IVS standards". Without the IVS having defined its standard or at least providing some benchmarking, it is difficult for stations to operate in that environment.

Lastly, the IVS is a service and should be thanking and acknowledging its stations regularly. The outcome of this pilot project will be regular (e.g. quarterly) reports to the stations, with the main aim to support their work as well as acknowledge their contribution to the IVS. These reports should further trigger conversations about performance issues and help to identify problems.

Project

The project is to collect data from stations participating in the pilot. Data will be collected from publicly available IVS files, such as station logs, schedule files, correlation and analysis reports, spool files etc. All data will be stored in a database. Subsequently, at fixed intervals (e.g. monthly or quarterly) station reports will be created and sent out to the participating stations. This process will be fully automated. During the pilot program, the intervals will be shorter and feedback from the stations about the content of the reports will be used to add new features and information.

Outcomes

The outcome of this pilot project is a fully automated system that collects and stores information about IVS sessions per station, derives statistics for a period of interest (e.g. the last 6 months), calculates basic benchmarking, combines and displays this information in a pdf report and sends this out to the participating stations. Examples for contents of these reports are number of observed sessions, percentage of successful observations, list of common problems, station coordinate time series, simple benchmarking against the other stations, station SEFDs, detection rate per band/channel etc.

Reporting

We will report about the progress of this pilot program at the DB meetings. Progress reports at DB 2025/1 and DB 2025/2 with a decision to be made for full roll-out to all interested stations at DB 2026/1. The additional 2 years is to ensure a smooth incorporation of new stations as well as further feedback.

Duration

The suggested duration of this pilot program is 1+2 years. In 2025, the pilot program will be closed to the current participants in order to finalise a robust system. It is foreseen to open the program to all IVS stations after successful assessment at the 2026/1 DB meeting.

Members

Lucia McCallum (Chair, AuScope), Tiege McCarthy (AuScope), Earl Lester (AuScope), Susana Garcia Espada (Kartverket), Esther Azcue Infanzón (IGN Spain), Andrea Rosillo (IGN Spain), Mariana Moreira (RAEGE Santa Maria).

The network stations of the pilot program are: Hb, Ke, Yg, Ho, Sa, Nn, Ns, Yj