3.7.2 Working Group on SINEX Format

General aspects

The IERS Working Group (WG) on SINEX Format was established in early 2011. The Charter of this WG is available on its website maintained at the IERS Central Bureau: https://www.iers.org/WGSINEX

Information related to the working group's activities are available there as well, such as agenda and minutes of the meetings held so far. The latest version of the SINEX format is v 2.02. A full format description is available at: https://www.iers.org/IERS/EN/Organization/AnalysisCoordinator/SinexFormat/sinex.html

The SINEX format is used by all four space-geodetic techniques to provide their products. In addition, the combined terrestrial reference frame (ITRF) is also provided in SINEX format. To ensure that all technique-specific needs are covered by the SINEX format, representatives from each Technique Service are members of the SINEX Working Group. Additionally, representatives of the IERS ITRF Combination Centers, the IERS Working Group on Co-location and Site Survey, and the IERS Convention Center are involved in the working group. The IERS Analysis Coordinator is an ex-officio member of the working group in order to cover the needs of the combined IERS products.

During the year 2018 there was no special meeting of the working group. All discussions on possible format revisions and additions have been done mainly based on personal communication in conjunction with international conferences and workshops, and partly via email.

Long station names in SINEX

The handling of longer station names in SINEX is a topic of discussion since the Unified Analysis Workshop (UAW) 2017 (see IERS Annual Report 2017). The need for extending the length of the station names came up in recent years in order to have unique station identifiers for the entire global network of GNSS stations. In the case of the SINEX format, a 1-to-1 adoption of the 9-character station names as it is realized for the RINEX-3 files would exceed the 80-character line actually used in SINEX. Several individuals within the IGS are working on suggestions to overcome this problem and to suggest a method for unique station identifications within SINEX in analogy to the 9-character station names defined for RINEX. A final decision was not taken until the end of 2018.

Provision of loading corrections in SINEX

In preparation for the upcoming realization of the terrestrial reference system (which is planned to be ITRF2020), the need to provide loading corrections along with the SINEX solution came up. The ITRF2020 should be generated without correcting the station deformations caused by non-tidal loading effects. The IVS, however, corrects its operational solutions by atmospheric loading effects, and the IVS analysis groups do not want to have two different processing chains in parallel. The

IERS Directing Board agreed that the IVS can submit its contribution to the ITRF2020 with loading corrections applied if these corrections are provided within the SINEX file as well. Therefore, a procedure for SINEX needs to be defined that allows the ITRF Combination Centers to make the loading corrections undone for the entire normal equation systems provided by the IVS. The ITRS Center together with the IVS Analysis Coordinator and the IVS Combination Center started to work on this issue.

Provision of SLR range biases in SINEX

One outcome of the ILRS pilot project on “Station Systematic Error Modelling (SSEM)” was that future solutions provided by the ILRS will include the values (including their sigmas) for range and time biases that have been applied when generating the solution. This makes it necessary that a new block in SINEX is defined to cover the SLR biases. The ILRS Analysis Coordinator together with the ILRS Analysis Standing Committee started to work on this issue. A final decision of the format is foreseen for end of 2019 in order to be prepared for generating the contribution to ITRF2020.

Daniela Thaller on behalf of the SINEX WG