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/IERS/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/SINEX

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 2019 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.

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 not all IVS analysis centers 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 was defined that allows 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 developed a block for storing the corrections for non-tidal loading effects that were applied at the observation level was defined. This allows to un-do this correction when handling the normal equations provided in the SINEX file.

One outcome of the ILRS pilot project on "Station Systematic Error Modelling (SSEM)" was that future solutions provided by the ILRS will

Provision of SLR range biases in SINEX

include the values (including their sigmas) for range and time biases that have been applied when generating the solution. This made it necessary to define a new block in SINEX to cover the SLR biases. The ILRS Analysis Coordinator together with the ILRS Analysis Standing Committee started to develop this block in 2019. A final decision of the format is foreseen for end of 2020 in order to be prepared for generating the contribution to ITRF2020.

Daniela Thaller on behalf of the SINEX WG