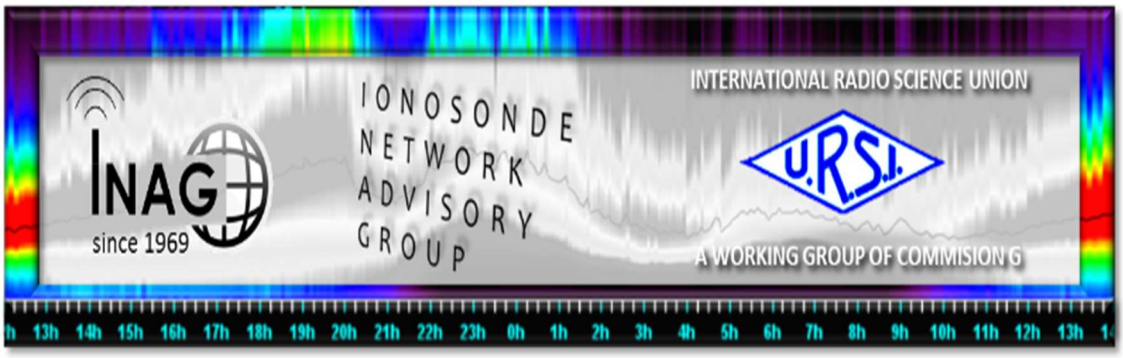

SUNSPT.ASC Update

SAO Explorer may be affected by Y2020 glitch

01/02/2020

In the early days of 2020, we received error reports of the Y2020 problem in the SAO Explorer tool for analysis of ionosonde data in DIDBase.

SAO Explorer: https://ulcar.uml.edu/SAO-X/SAO-X.html

If you are using SAO-X and your work is affected, please accept our apologies for the inconvenience. The problem has been traced down to the outdated/truncated content of the system file holding sunspot numbers, SUNSPT.ASC.

Refreshing the sunspot number file is a good practice for all. This time, however, it is required. Please point your browsers to the following page at UML to download and update SUNSPT.ASC file:

Direct link: https://ulcar.uml.edu/SAO-X/SUNSPT.ASC
UML page with links to R12 and IGRF files: https://ulcar.uml.edu/digisonde.html

Update Instructions

- **Download the new file from the link above**
- **Locate SUNSPT.ASC file in your SAO-X installation folder**
    - Our Linux and MacOS users: please check for possible mismatch of the upper-lower case letters in the filename. The standard filename is SUNSPT.ASC, but you may need Sunspot.asc instead.
    - (Windows users are not affected by the case mismatch issue)
- **You will likely need the administrative privileges to update the file in the SAO-X installation folder**

Technical details

- The sunspot number is used by IRI model in SAO Explorer. Each time an ionogram is opened for analysis, the predicted values of foF2p are updated using the latest available R12 index value.
    - The ionosonde observatories are commonly use predicted R12 values in SUNSPT.ASC file. Sometimes these predictions are unreasonable, especially if SUNSPT.ASC is outdated.
    - Rerunning IRI in SAO Explorer allows a better comparison of IRI to the measured foF2 values and an improved ARTIST performance
- SAO Explorer has an algorithm to predict R12 values if they are not available in SUNSPT.ASC file. However, the algorithm requires knowledge of the solar cycle start and end times.
- As we found out, there are SUNSPT.ASC versions in circulation that do not have the cycle markers and stop at 2020. This particular version causes the Y2020 problem.

Please consider updating the file with IGRF coefficients as well:
https://ulcar.uml.edu/SAO-X/igrfdata.txt

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Exit Note: INAG would like to hear from you on your status and plans. To contribute an article to the INAG Bulletin please write to bulletin@ursi-inag.org. Your article will be published to the URSI G.1 site and announced in this newsletter. To send a short note to INAG newsletter, simply reply to chair@ursi-inag.org.