Space Weather activities in Ethiopia

By

Melessew Nigussie
Washera Geospace and Radar Science Research Laboratory, Bahir Dar University, Ethiopia
Email:melessewnigussie@yahoo.com
Mob:+251913835449

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New ground based space monitoring facilities in Ethiopia

- **Facilities to be deployed in Bahir Dar in 2022/23**
- ✓ **Meteor Radar** in collaboration with IAP, German.
- ✓ **All-Sky Imager** in collaboration with DLR German + Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan.
- ✓ **Multi-constellation GNSS scintillation receiver** in collaboration with SANSA, South Africa.
- **Facilities in Entoto observatory, EO (Addis Ababa)**
- ✓ **Neutron monitor** in collaboration with South Africa (recently deployed)
- ✓ One **GNSS receiver** by the observatory itself (to be deployed)
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Washera Lab expansion

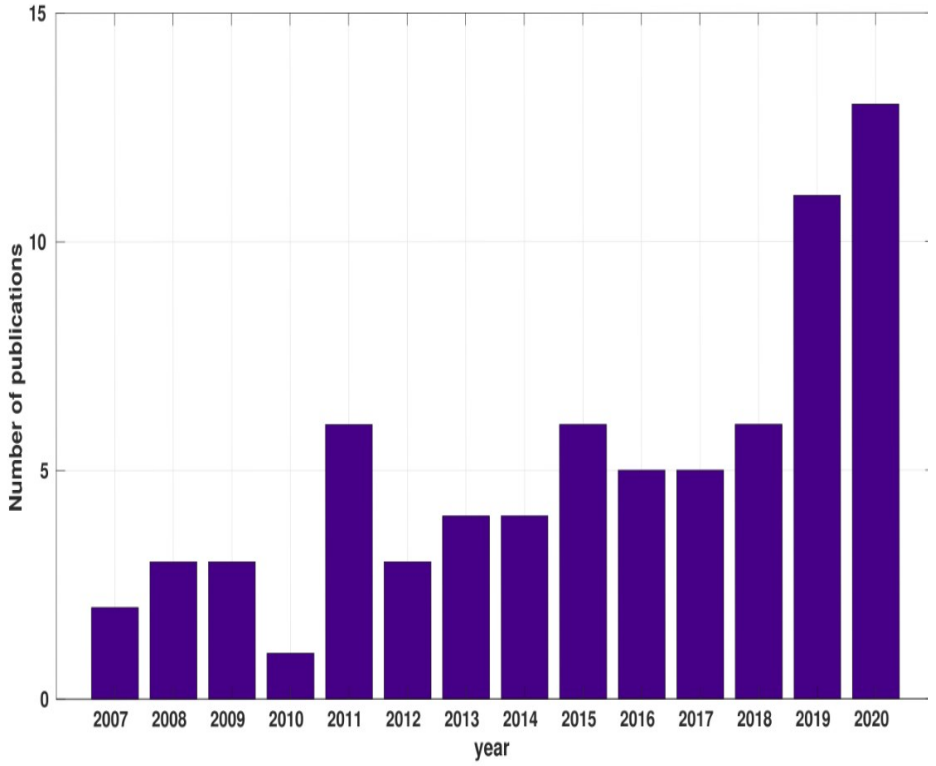
- Ground based facility monitoring control station shelter is being built by Bahir Dar University, BDU.
- It is G+0, area ~ 90$m^{2.}$ It has four rooms.
- The expected new ionospheric monitoring stations will be controlled in this new shelter.
- It costs more than 2,000,000 ETB ($40,000).
- It is close to the existing ionospheric monitoring stations (e.g. BNR).

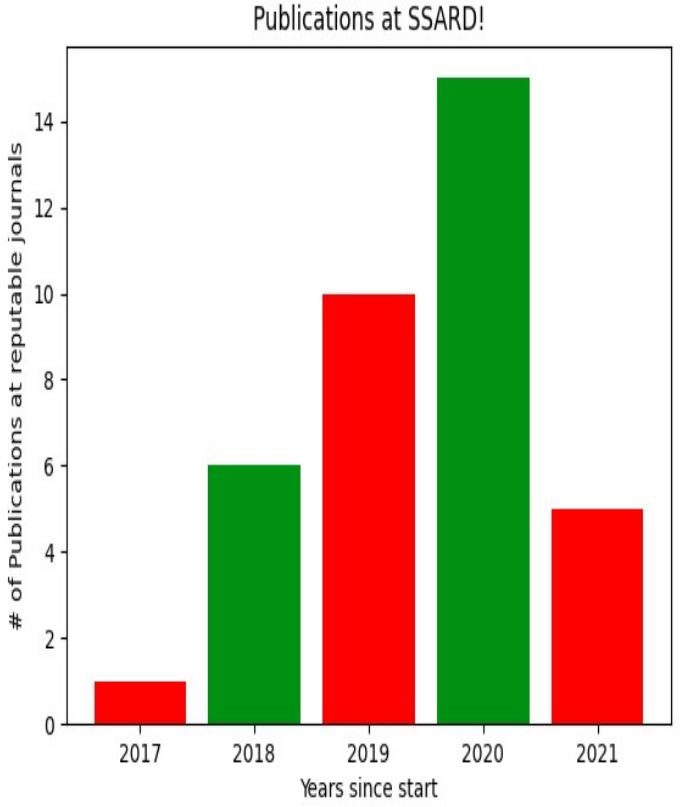
Facility needs updating and upgrading

- Blue Nile Coherent Back-scatter Radar (BNR) (antenna array right image) (deployed by Boston college and BDU).
- BNR is capable to vertical scanning of the ionosphere.
- BNR needs to be upgraded for East-West scanning, too, for detail EEJ study.

- Thanks to Air Force Office of Scientific Research, **AFOSR**, our research proposal is funded for three years, Feb 2022 to Jan, 2025. The fund includes travel expenses of experts from USA-Bahir Dar-USA to update & upgrade BNR.
- Specifically, we need the help of BC experts to update and upgrade BNR system.

Space weather related publication trend at Washera and EO Labs





Number of publications per year at Washera (left) and EO (right).

Thank you very much for listening.