The Trieste Solar Radio System (TSRS) as SWENET SDA

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The Observing Station in Basovizza

The Trieste Solar Radio System at a Glance
- TSRS (Trieste Solar Radio System)
- MMSRP (237, 327, 408, 610 MHz)
- DMMSRP (1420, 2695 MHz)
- Flux density + Circular polarization
- High time resolution (1 ms – 0.1 ms)
- Continuous coronal radio surveillance
- Radio indexes published on the net in near-real-time
- SOLRA (SOLar Radio Archive)

The TSRS Antennas and Feeders

Architecture of TSRS

TSRS Activities for Space Weather
- Radio surveillance of the solar corona
- RT publication of the radio activity descriptors
- RT monitoring of solar radio flares
- Alerting, Nowcasting & Forecasting service
- Identification and analysis of radio precursors
- Theoretical modelling of the S-T relations

Relevance of Solar Radio Emission to SpW
- PROXIES OF SOLAR DRIVERS
  - Type I Bursts (magnetic topology changes)
  - Type II Bursts (propagating shocks, particle beams)
  - Type III Bursts (particle acceleration, particle beams)
  - Type IV Bursts (magnetic reconnection, acceleration)
  - Spikes (energy release fragmentation, acceleration)
  - Precursors (radio signatures preceding flares)
  - 10 cm / 2800 MHz (EUV enhancements)
- DIRECT SOURCE OF GEOEFFECTS
  - Radio Flares (Very Intense Broad Band Radio Noise)

Onset of a Strong Type IV Burst

The Sun as a Radio Noise Source
- The Sun is a radio source
  - non-directional
  - broad band
- Solar radio noise can
  - increase by several orders of magnitude during outbursts
  - persist at high levels for minutes to hours
- Enhanced solar radio noise can perturb
  - HF communications (MIL!)
  - Mobile communications (GSM, GPRS, UMTS!)

TSRS Data Products in SWENET

TSRS DATA PRODUCTS
- 1-min-average and 1-min-max radio indices
- 237, 327, 408, 610, 1420, 2695 MHz
- FLUX DENSITY & CIRCULAR POLARIZATION
  - [ W / m² / Hz ] & [ dBm / Hz ]
- Observed and 1-min-ahead Predicted Values
- Single polarization channels & sum of channels

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TSRS Web Access Statistics

http://radiosun.ts.astro.it