

Single Dish matters

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SD data formats

spectral axis will be in Ghz/MHz/...

- **Raw data**

- Should we even bother? They can be big, very instrument specific, and have odd units.
- Usually a set of related spectra, sometimes in Freq space, sometimes in Lag space
- Sometimes require other observatory data not stores in online databases for calibration

- **Spectra** (calibrated? but with provenance hopefully)

- SDFITS (1995 draft standard) – but many dialects now exist
- MBFITS (2007) (IRAM, APEX, INAF) - raw only?
- CLASS (GILDAS, 30m) – a *de facto* standard?
 - FITS export (no good import?)
- ASCII tables

- **Maps/Cubes**

- These are standard FITS, so no special needs for SD
- Gridders can take spectra and create a map/cube
- Combine single dish and interferometric data

- **Pulsar Timing**

- PSRFITS

See also: <https://www.asterics2020.eu/dokuwiki/doku.php?id=open:wp4:wp4techforum5:radiointhevo>

(some) Current SD data producers

- **FAST** 500m
 - **Arecibo** 300m
 - **GBT** 110m
 - **Effelsberg** 100m
 - **Lovell** (Jodrell Bank) 64m
 - **Parkes/Murriyang** 64m
 - **SRT** (Sardinia) 64m
 - Also: **Medicina** and **Noto** from INAF
 - **LMT** (Mexico) 50m
 - **Nobeyama** 45m
 - **IRAM** 30m
 - **ALMA** TP 12m
 - **APEX** 12m
 - Various EVN/VLBI telescopes?
- SD archives
 - NRAO (GBT, ALMA)
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(some) Current SD software

- (GBT) gbtidl
- (Arecibo) AO IDL
- (IRAM 30m) GILDAS/CLASS
- (ALMA) CASA “sd” toolkit
- (Effelsberg) nod3
- Astropy: specutils, specreduce, specviz, pyspeckit
- “OLD”: comb, specx, DISH (AIPS++), UniPOPS
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