

A Sun measurement site in Switzerland for the (monitoring and) calibration of weather radars

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From S-band (DRAO) to C-band using



$$F_{\lambda} = p_{\lambda} \cdot (F_{10.7} - q_{10.7}) + q_{\lambda}$$

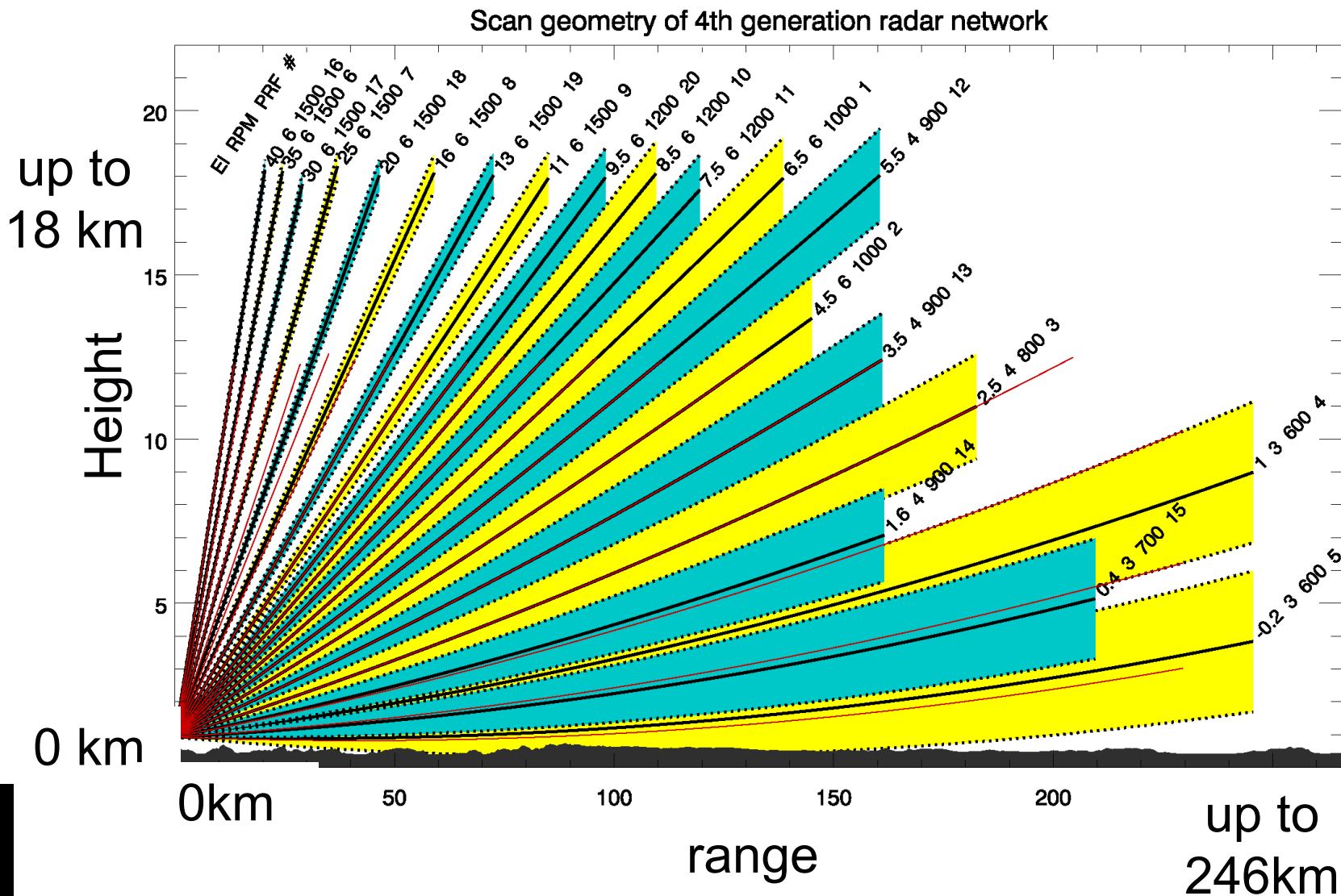
where $[F_{\lambda}] = [F_{10.7}] =$ solar flux unit (sfu)

1 sfu is equal to $10^{-22} \text{ W} \cdot \text{m}^{-2} \cdot \text{Hz}^{-1}$, which is $10^{-19} \text{ mW} \cdot \text{m}^{-2} \cdot \text{Hz}^{-1}$.

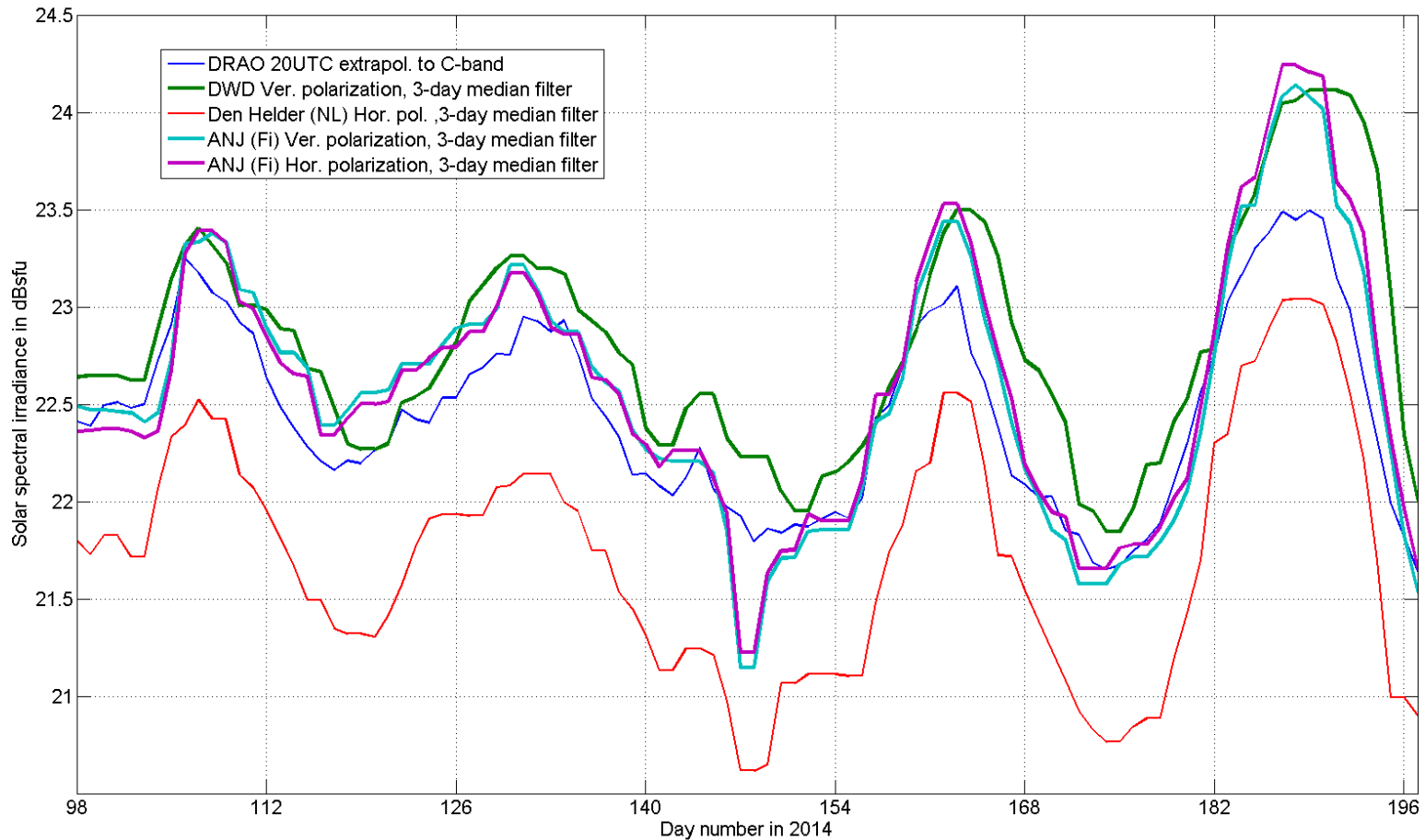
$q_{10.7}$ set to 64 sfu (~ 18.0 dBsfu);

$q_{5.5}$ set to 113 sfu (~ 20.5 dBsfu);

20 sweeps (>360°-rotation) every 5 minutes



2014: DRAO from S- to C- and 3 C-band radars

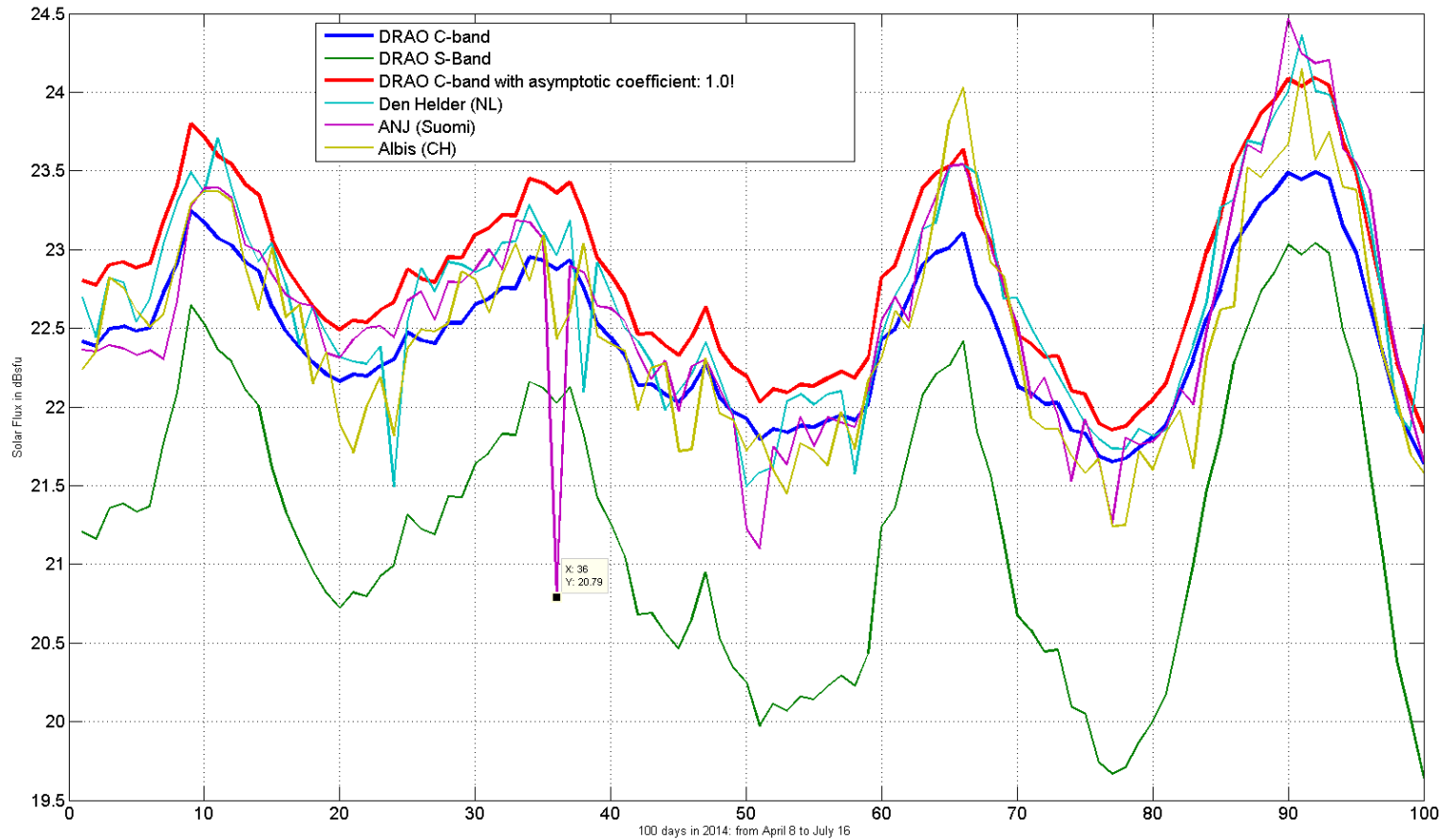


DRAO (1-hour; start 20 UTC) accurate measurement is the reference

2014, **daily** estimates: 3 radars, two 5cm DRAO curves

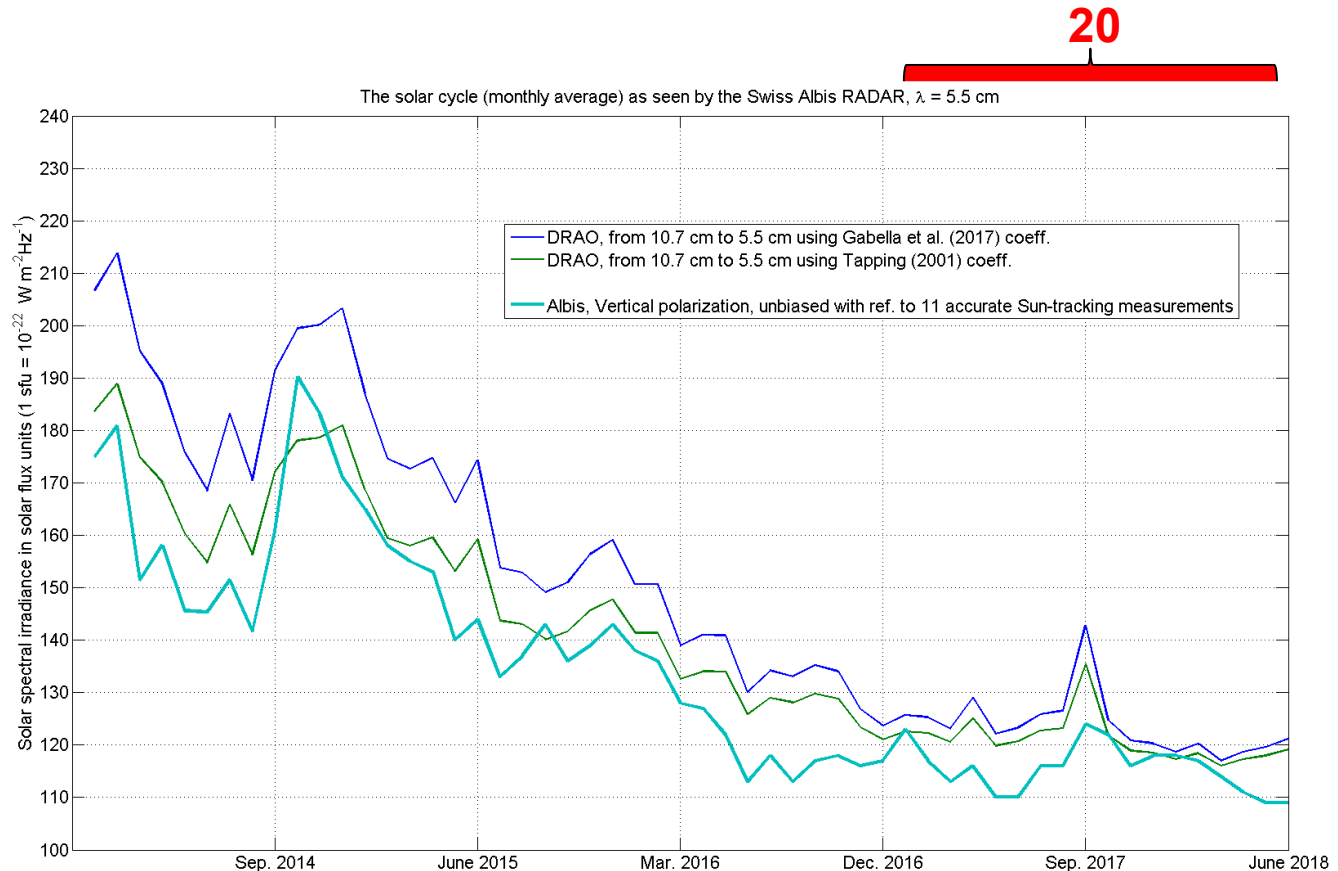
$$(F_{5.5} - q_{5.5\text{cm}}) = p_{\lambda} \cdot (F_{10.7} - q_{10.7})$$

where $[F_{\lambda}] = [F_{10.7}] = \text{solar flux unit (sfu)}$



Jan. 2014-June 2018: 54 monthly values

60 sun rotations, Albis (CH) radar



Jan. 2014-June 2018: 54 months (**60 sun rotations**)

	N. of months	$p_\lambda = 0.95$	$p_\lambda = 0.71$
Lema (CH) H-pol (Jan. 2014)	18 (active)	0.30 dB	0.32 dB
Albis (CH) H-pol “	18 “	0.20 dB	0.22 dB
Albis (CH) V-pol “	18 “	0.21 dB	0.23 dB
Lema (CH) H-pol (July 2015)	18 (less-active)	0.13 dB	0.12 dB
Albis (CH) H-pol “	18 “	0.14 dB	0.16 dB
Albis (CH) V-pol “	18 “	0.14 dB	0.16 dB
Lema (CH) H-pol (Jan. 2017)	18 (ψ-quiet)	0.20 dB	0.19 dB
Albis (CH) H-pol “	18 “	0.18 dB	0.16 dB
Albis (CH) V-pol “	18 “	0.18 dB	0.16 dB



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