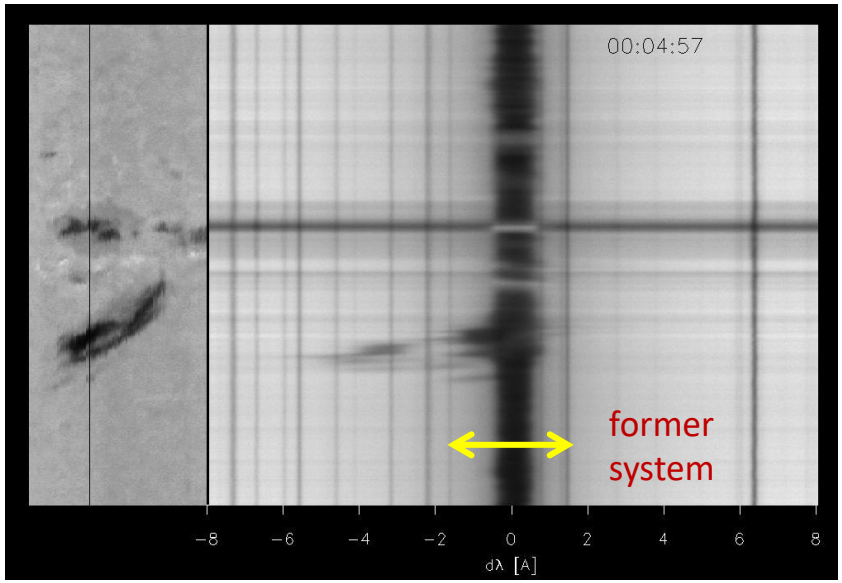
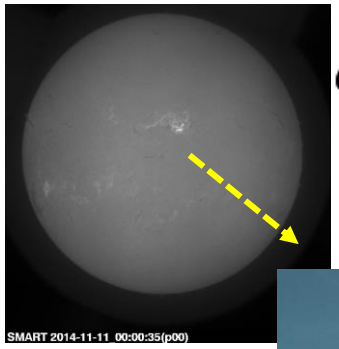
Solar Dynamics Doppler Imager on SMART

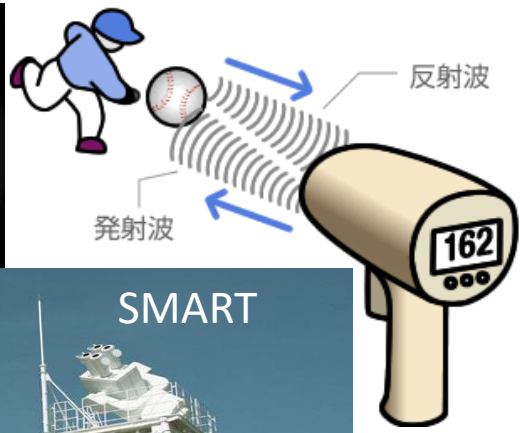
Capture the 3D velocity of high speed ejections to predict solar storms

in operational 2016.5 ~ under PSTEP

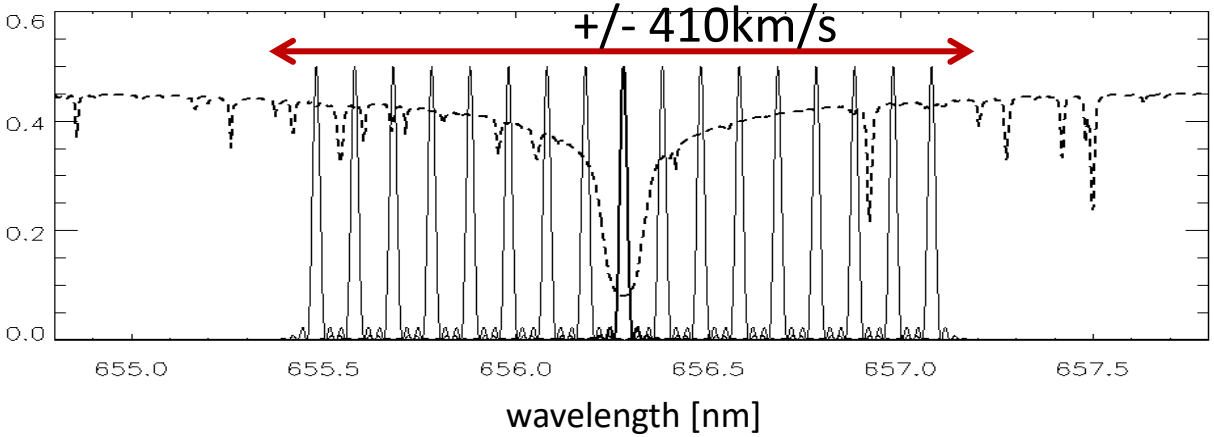
Hα spectra by DST (2014.11.11)







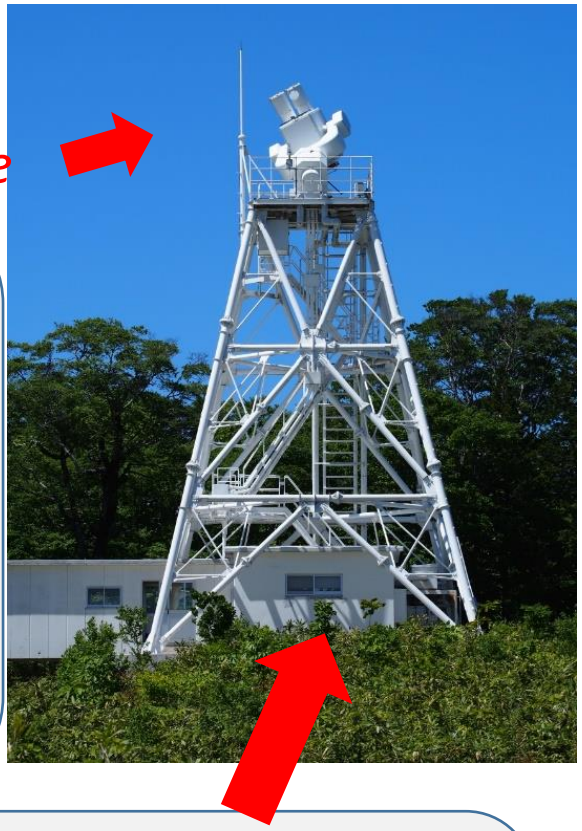
transmission



λ−scan by LCVR tunable filter over Hα ±9 A (73-pos)

Solar Dynamics Doppler Imager (SDDI)

Inside the Telescope



2K x 2K pix.
8MB / image
FOV:
2520”x2520”
1.23 arcesc/pix

ORCA camera

Camera link

onboard PC

Windows10, 64bit
10Gb NIC

USB

λ–scan
Hα +/– 9 A (73-pos.)
in 12ec（610MB)
= 3060 MB / 1 min
= 184 GB/ 1 hour

TF-40

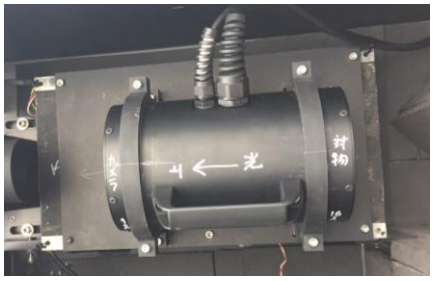
LCVR Cntl.

ADC

Temperature control

HTR Cntl.

Ethernet



Observation room

Remote desk top

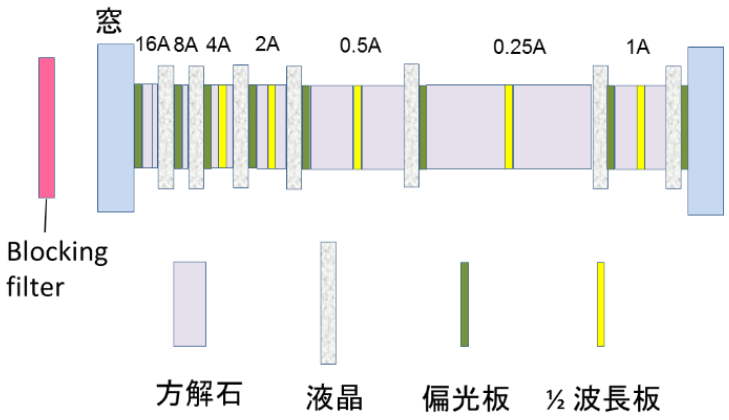
Windows10, 64bit
10Gb NIC

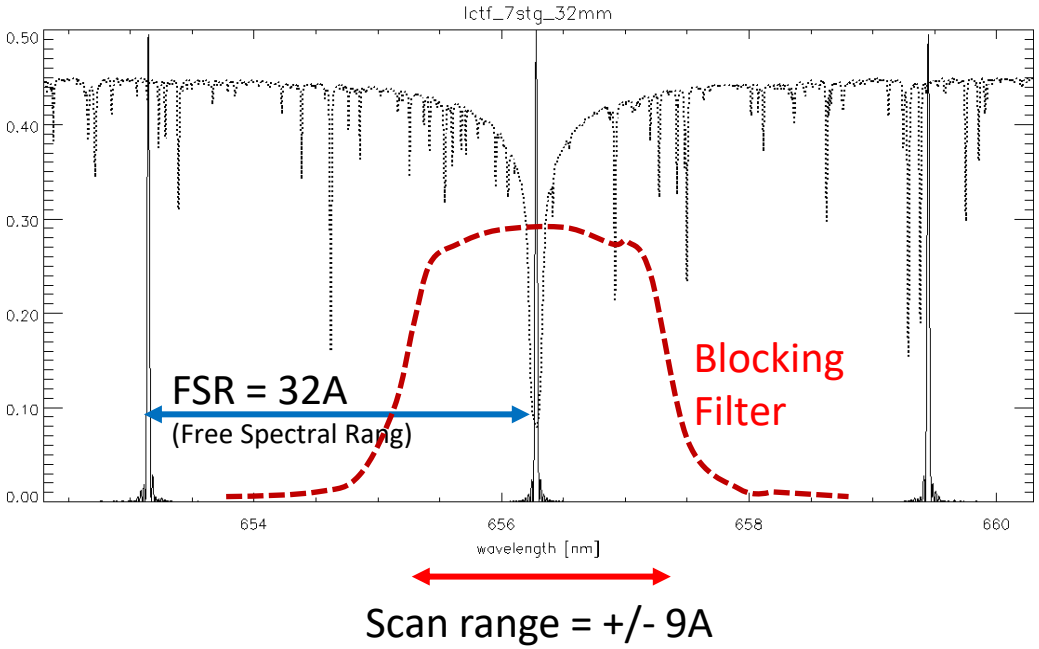
Operation PC

RAID 10TB + 4TBx2 + USB3-8TB x4
(For data selection and Storage)

SMART net

TF-40 (Ha tunable filter w/LCVR)





Basic properties

	SDDI	former system (T1)
• Wavelength range	Hα -9 ～+9 A	Hα -1.2 ～+1.2 A
• λ sampling	0.25A (73pos)	~0.4A (7pos)
• Field of view	2520” x 2520”	ϕ 2300”
• Spatial sampling	1.23” (diff. limit 0.83”)	0.56”
• Time resolution	12 sec	60 sec
• Data rate	~1.5 TB/day	~100 GB/day