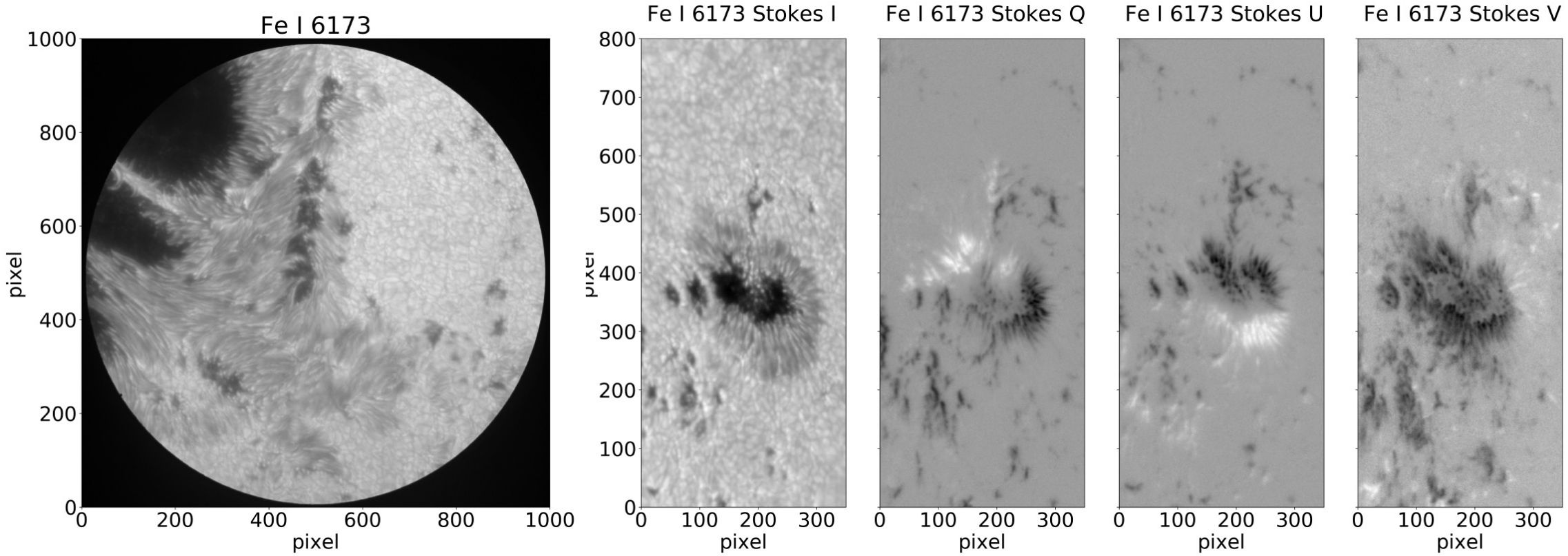
IBIS-A The IBIS data Archive

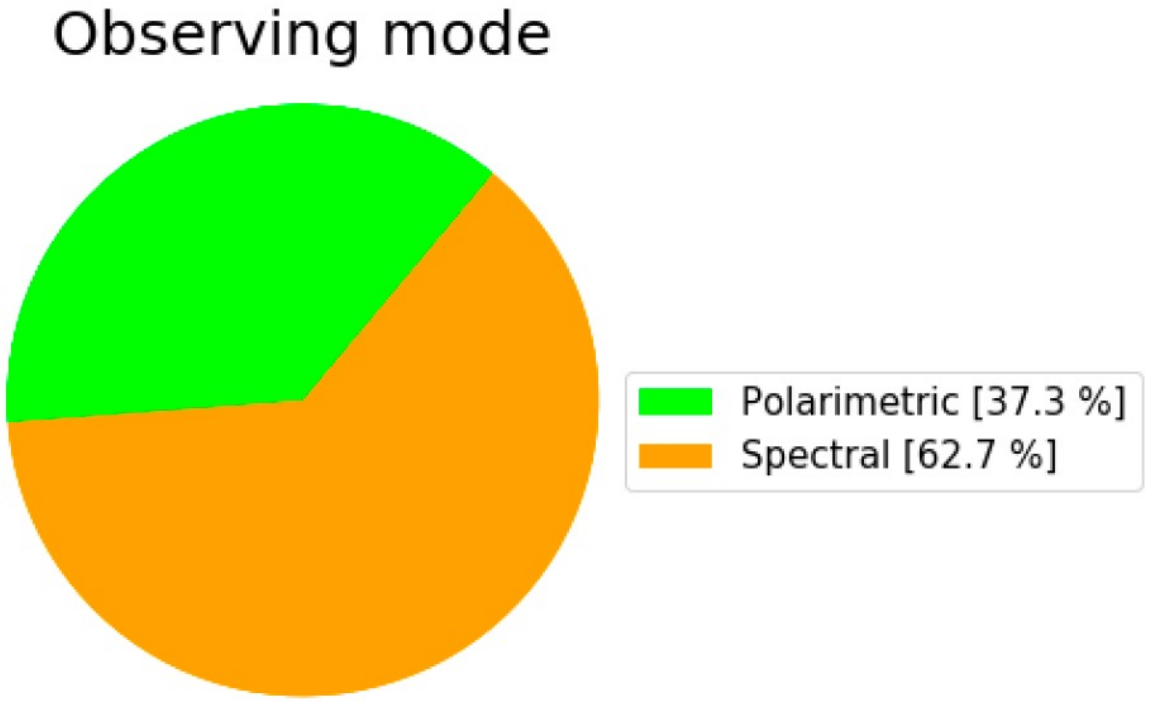
https://www.ibis20.inaf.it

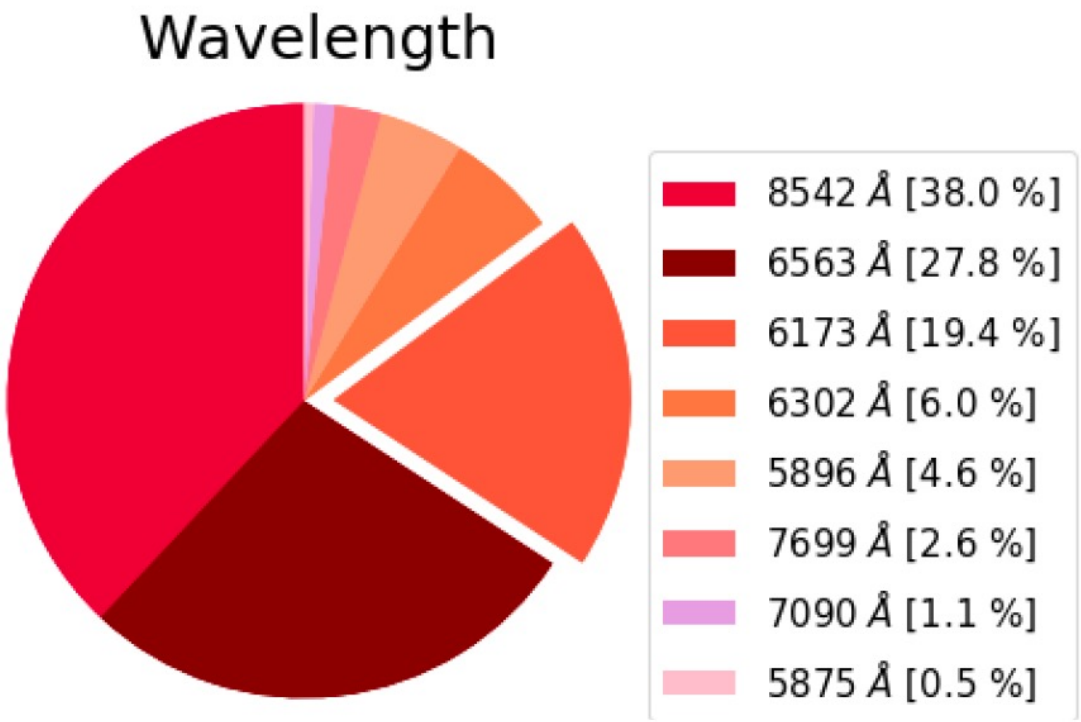


Ilaria Ermolli, Fabrizio Giorgi, Mariarita Murabito,
Vincenzo Guido, Marco Molinaro,
Salvatore Guglielmino, Paolo Romano, Giorgio Viavattene

IBIS-A: data volume and targets

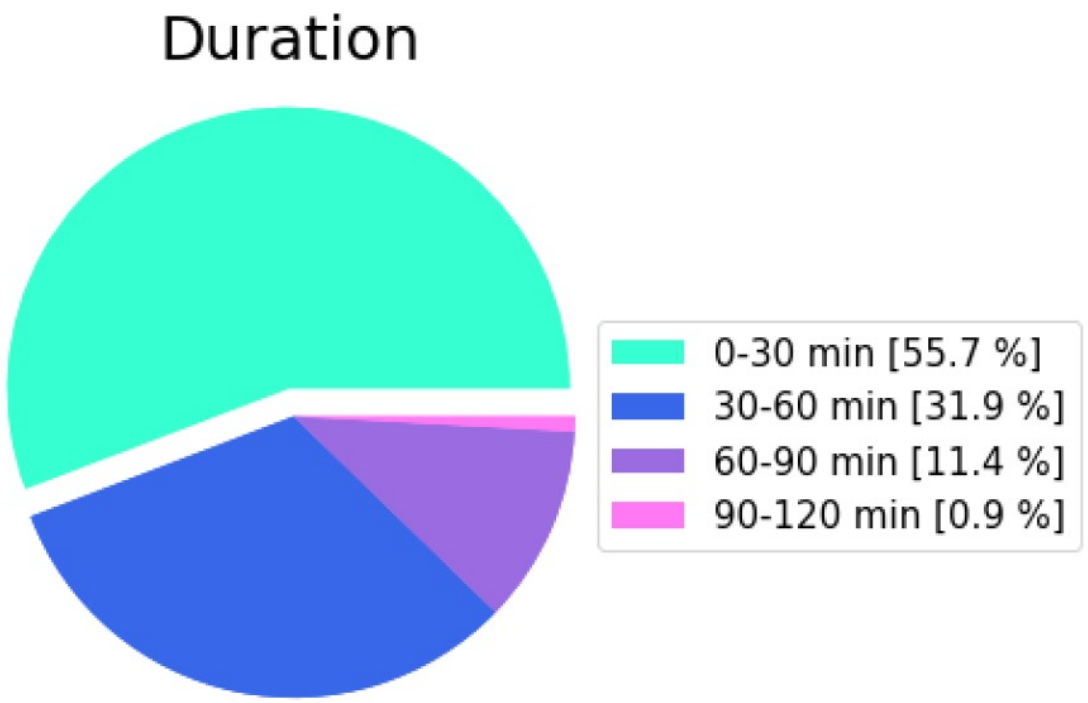
At present **30 TB** of data taken during 28 observing campaigns carried out in 2008, and from 2012 to 2019.

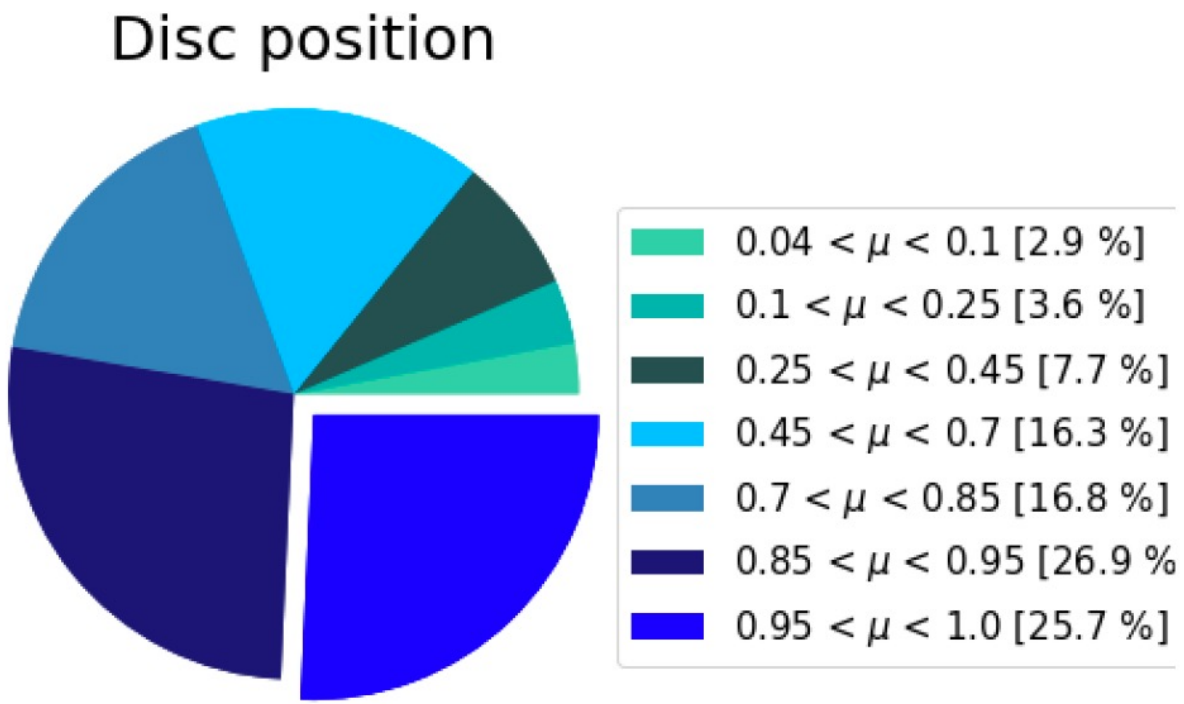




INAF

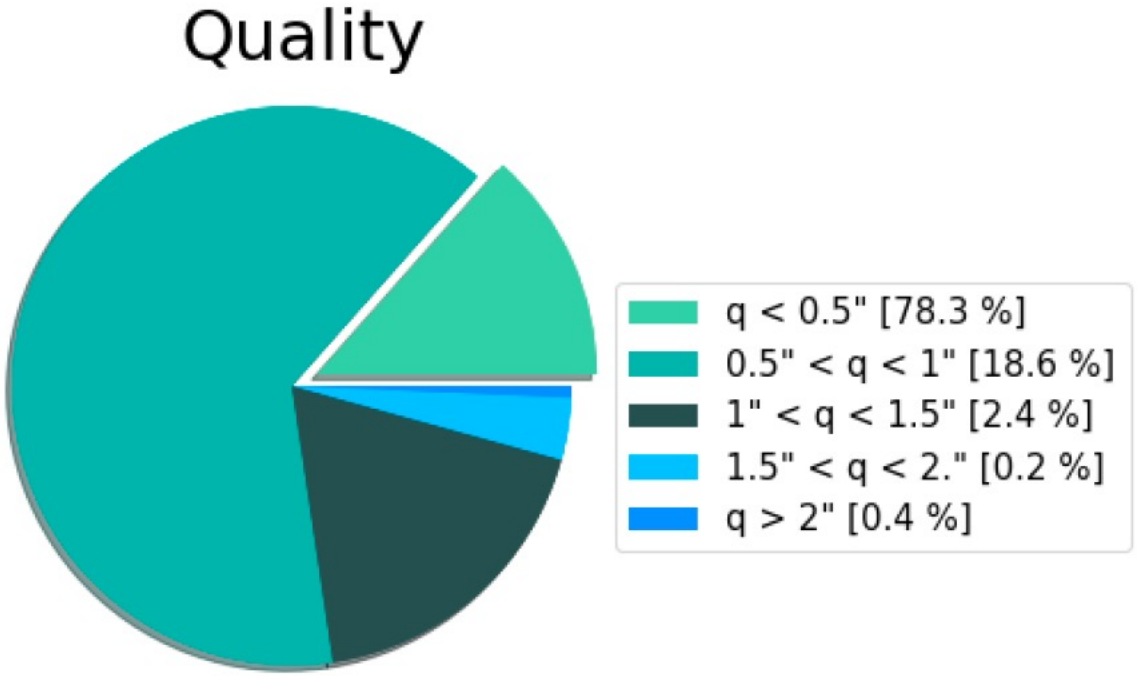
IBIS-A: data volume and targets

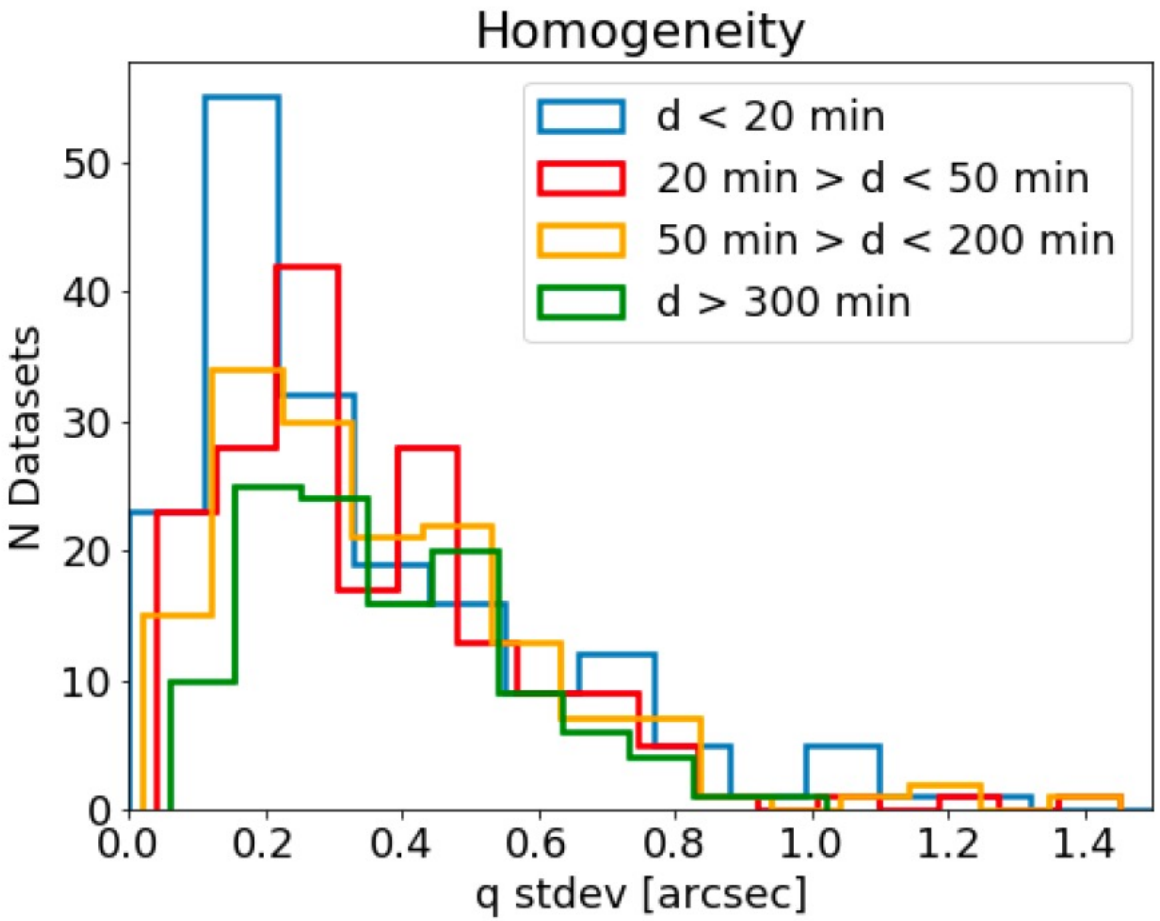




INAF

IBIS-A: data volume and targets





FoVs include **pores** (19%), **sunspots** (30%), **quiet Sun, network** and **plages** (51%).

IBIS-A: data available

IBIS-A includes **raw** and **calibrated** observations, and **science-ready** data

- **30% Level 1 data** calibrated for **instrumental response** and compensated for **residual seeing degradation** (MOMFBD)
  Fe I 617.3 nm, Hα 656.3 nm, Ca II 854.2 nm series

- **10% Level 1.5 data** as multi-dimensional arrays of **CP, LP, NCP, Vlos**
  Fe I 617.3 nm and Ca II 854.2 nm series

- **23% Level 2 data** with the view of the **magnetic and velocity fields** (VFISV)
  Fe I 617.3 nm series

Contextual data: INAF **full-disk** observations (cont, Ca II K, Hα), **Hinode/SP**, **IRIS**

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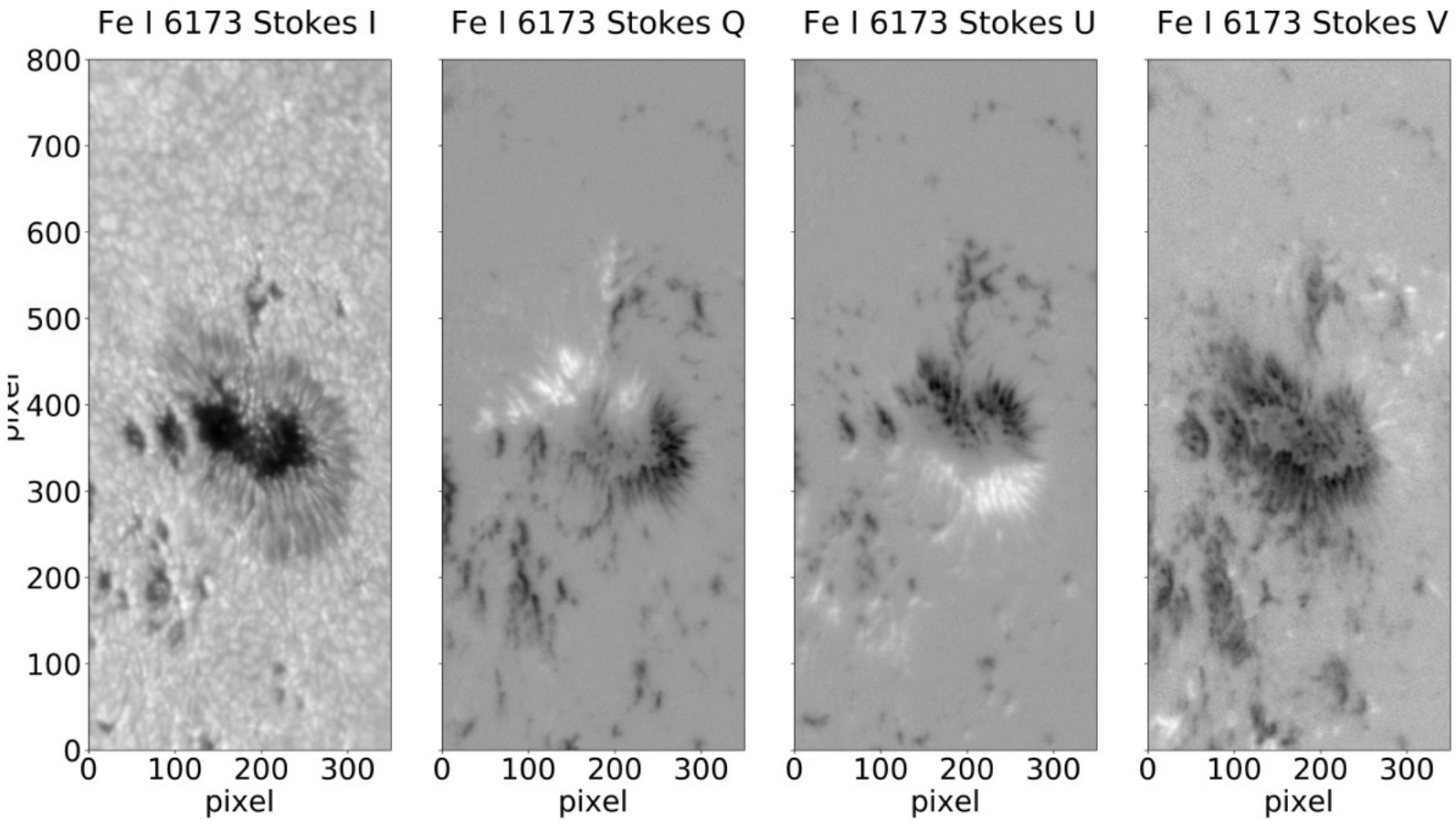
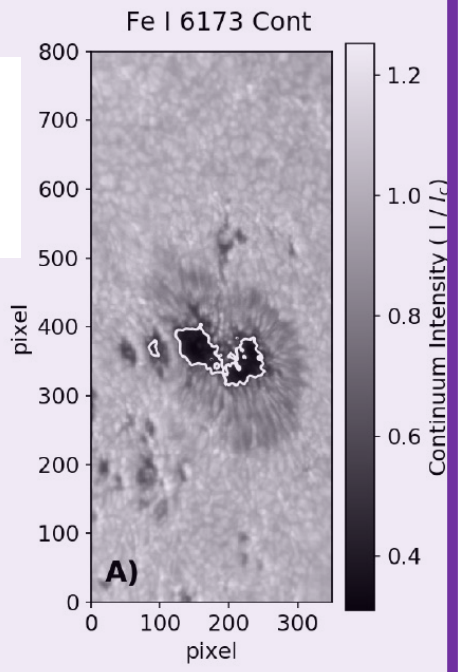
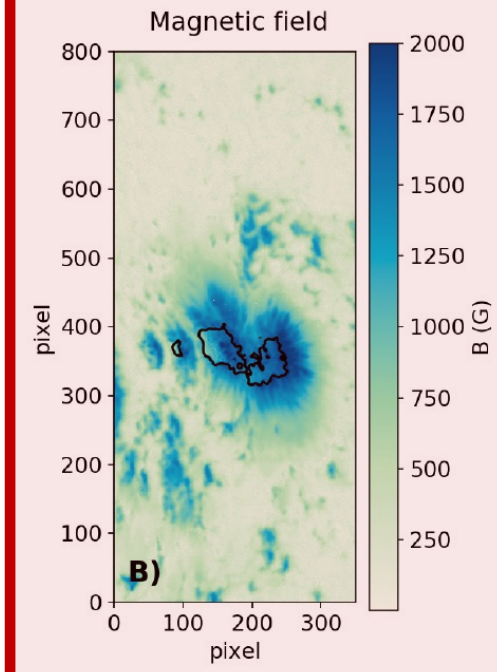
IBIS-A: data format

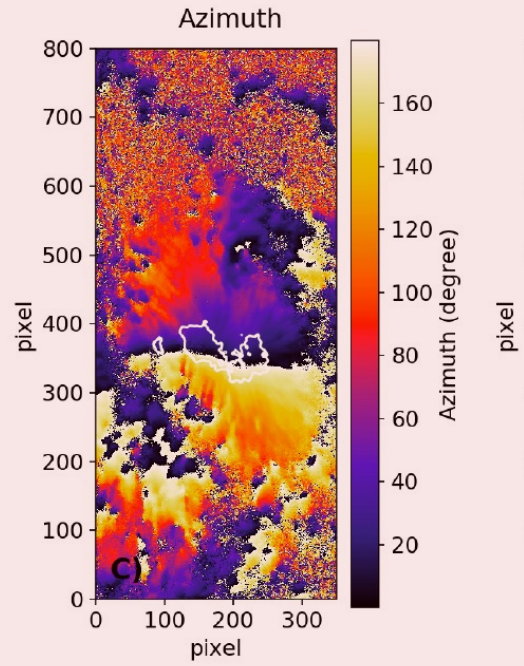
Level 1
***.sav**

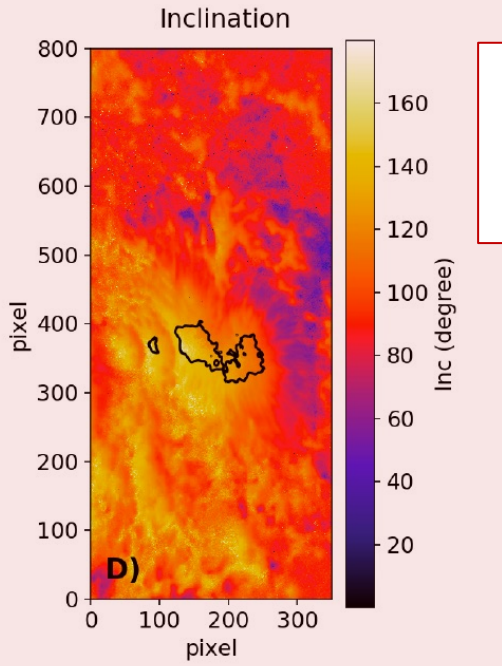


Level 1
***.sav**

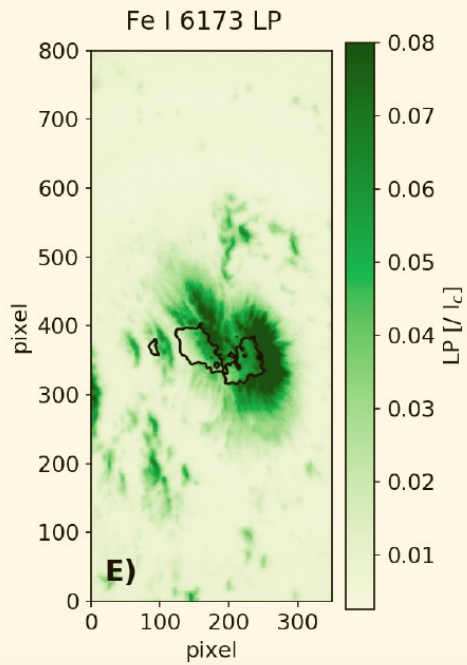


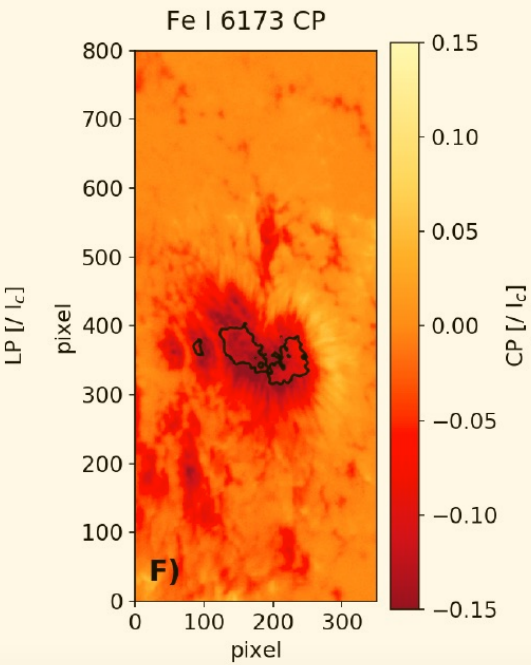


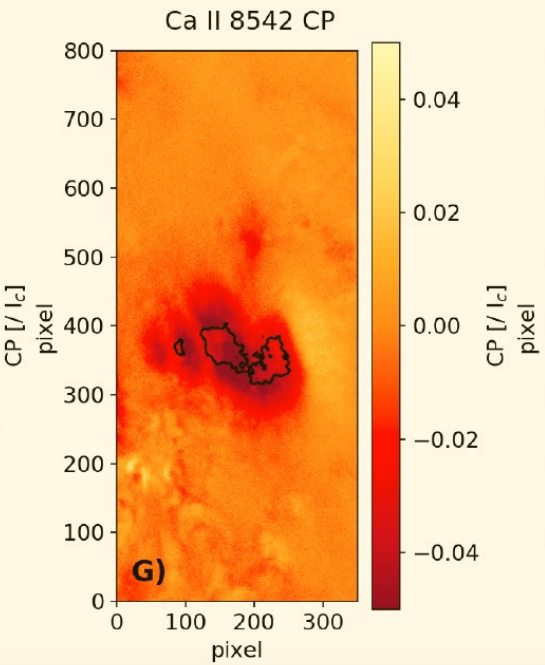


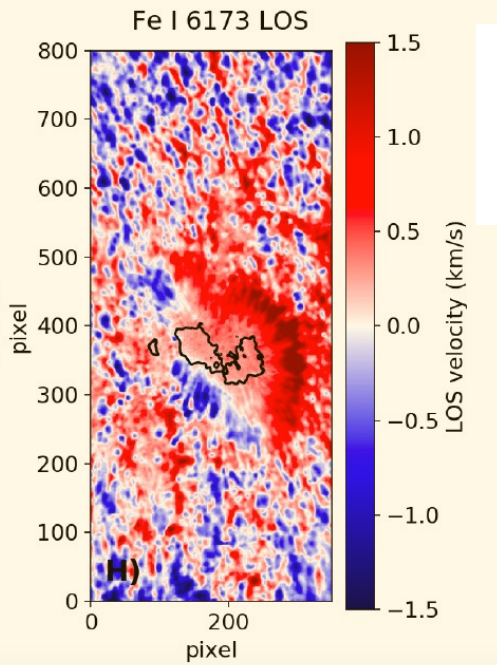


Level 2
***.fits**









Level 1.5
***.fits**

IBIS-A: metadata

Level 2

Primary Header

```
SIMPLE  =                    T / Written by IDL:  Thu Nov  4 12:38:11 2021
BITPIX  =                    8 /
NAXIS   =                    0 /
DATE    = 'Thu Nov  4 12:38:11 2021' /Date of FITS file creation
EXTEND  =                    T / FILE MAY CONTAIN EXTENSIONS
EXTNAME = 'science '                 /Name of HDU
SOLARNET=             0.500000 /Fully SOLARNET-compliant=1.0, partially=0.5
OBS_HDU =                    1 /This HDU contains observational data
BTYPE   = 'Output inversion'   /Description of what the data array represents
DATE-BEG= '2016-05-13T13:38:48' /Date of start of observations
TIMESYS = 'UTC       '               /
OBSRVTRY= 'NSO, Sacramento Peak' /Name of observatory
TELESCOP= 'DST       '               /Name of the telescope
INSTRUME= 'IBIS      '               /Name of instrument
OBS_MODE= 'Spectropolarimetric imaging' /settings used during obs.
WAVEBAND= 'Fe I 6173 A'              /PRE-FILTER name
SCAN_DUR=            19.973000 /Time require for line scan
DST_SLAT=            11.586998 /Stonyhurst Heliographic solar lat. (deg)
DST_SLNG=            45.541883 /Stonyhurst Heliographic solar long. (deg)
SOLAR P0=            -21.240328 /Solar P angle (degrees)
SOLAR B0=            -2.7994148 /Solar B0 angle (degrees)
SOLAR L0=            -1.1516182 /Solar L0 angle (degrees)
RSUN_ARC=            949.71210 /Apparent photospheric Solar radius in arc second
DST_SEE =            0.31494141 /Mean Seykora scintillation monitor value arcsec
PRSTEP1 = 'CALIBRATION'              / First step: Bias, dark and flatfielding correct
PRPROC1 = 'IBIS pipeline'            /Name of procedure used written in IDL
PRSTEP2 = 'SPECTRAL-DISTORTION-CORRECTION' / Blueshift and gain correction
PRPROC2 = 'IBIS pipeline'            /Name of procedure used written in IDL
PRSTEP3 = 'DESTRETCHING'             /
PRPROC3 = 'IBIS pipeline'            /Name of procedure used written in IDL
PRSTEP4 = 'DEMODULATION'             /
PRPROC4 = 'IBIS pipeline'            /Name of procedure used written in IDL
PRSTEP5 = 'STOKES-CROSSTALK-CORRECTION' /
PRPROC5 = 'IBIS pipeline'            /Name of procedure used written in IDL
PRSTEP6 = 'STOKES-INVERSION'   /Processing step
PRPROC6 = 'VFISV     '               /Name of procedure used
ORIGIN  = 'INAF - OAR'               /Creator of FITS files
LEVEL   = '2         '               /Data level of FITS file
INFO_URL= 'http://ibis.oa-roma.inaf.it/IBISA/' /IBIS archive web page
```

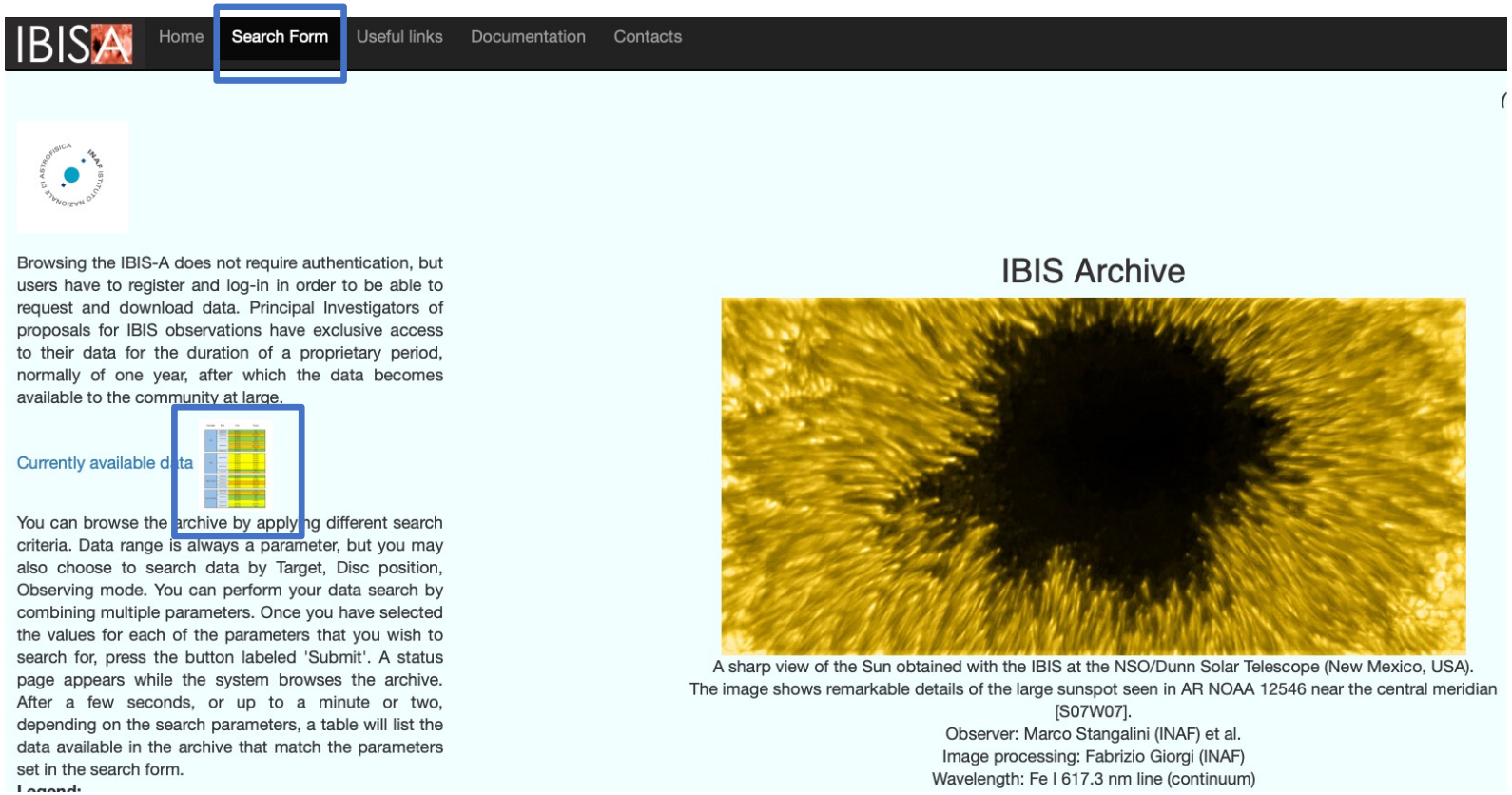
ext=1 header

```
XTENSION= 'IMAGE   '           / IMAGE extension
BITPIX  =                      -32 /
NAXIS   =                      3 /Number of Axes
NAXIS1  =                      350 /Spatial coordinates
NAXIS2  =                      800 /Spatial coordinates
NAXIS3  =                      6 /VFISV physical quantities
PCOUNT  =                      0 / NO GROUP PARAMETERS
GCOUNT  =                      1 / ONE TABLE
POS 0   = 'Cont        '               / Continuum intensity
POS 1   = 'B           '               /VFISV /Magnetic field strength
POS 2   = 'Inc         '               / VFISV /Inclination angle (degree)
POS 3   = 'Azi         '               / VFISV /Azimuth angle (degree)
POS 4   = 'VLOS        '               / VFISV /Line-of-sight velocity field (km/s)
POS 5   = 'Ffact   '           / VFISV /Filling factor
END
```

ext=2 header

```
XTENSION= 'wavelength values'  / IMAGE extension
BITPIX  =                      -32 /
NAXIS   =                      1 /
NAXIS1  =                      21 /
PCOUNT  =                      0 / NO GROUP PARAMETERS
GCOUNT  =                      1 / ONE TABLE
N POINTS=                      21 /Number of spectral points
END
```

IBIS-A: User interface – Search form



https://www.ibis20.inaf.it

http://ibis.oa-roma.inaf.it/IBISA/

IBIS-A: summary of available data

Date	Hour	Target	Reduced	Preview	Lambda (N° point)	N° SCAN	INAF full-disk data Red	INAF full-disk data CaIIK	INAF full-disk data H-alfa	HINODE	IRIS
19/05/2016	15:03:10	-			6173 Stokes (21) 8542 Stokes (21)	25					
19/05/2016	18:15:51	Sunspot			6173 Stokes (21) 8542 Stokes (21)	23					
19/05/2016	20:29:53	Sunspot			6173 Stokes (21) 8542 Stokes (21)	8					
19/05/2016	20:55:07	Sunspot			6173 Stokes (21) 8542 Stokes (21)	1					
20/05/2016	13:53:06	Sunspot	X		6173 Stokes (21) 8542 Stokes (21)	319					
05/10/2016	15:06:58	Pore	X		8542 Stokes (11) 6563 I (14)	200					
06/10/2016	15:58:20	Quiet Sun	X		8542 Stokes (11) 6563 I (14)	200					
06/10/2016	16:55:16	Quiet Sun	X		8542 Stokes (11) 6563 I (14)	176					

IBIS-A: Browsing and downloading

Browsing the IBIS-A does not require authentication, *but* users have to register in order to be able to request and download the data.

Data are packed as single zip and delivered via ftp.

https://www.ibis20.inaf.it

http://ibis.oa-roma.inaf.it/IBISA/

Thank you !

INAF