Dynamics and magnetism of selected phenomena in the solar atmosphere

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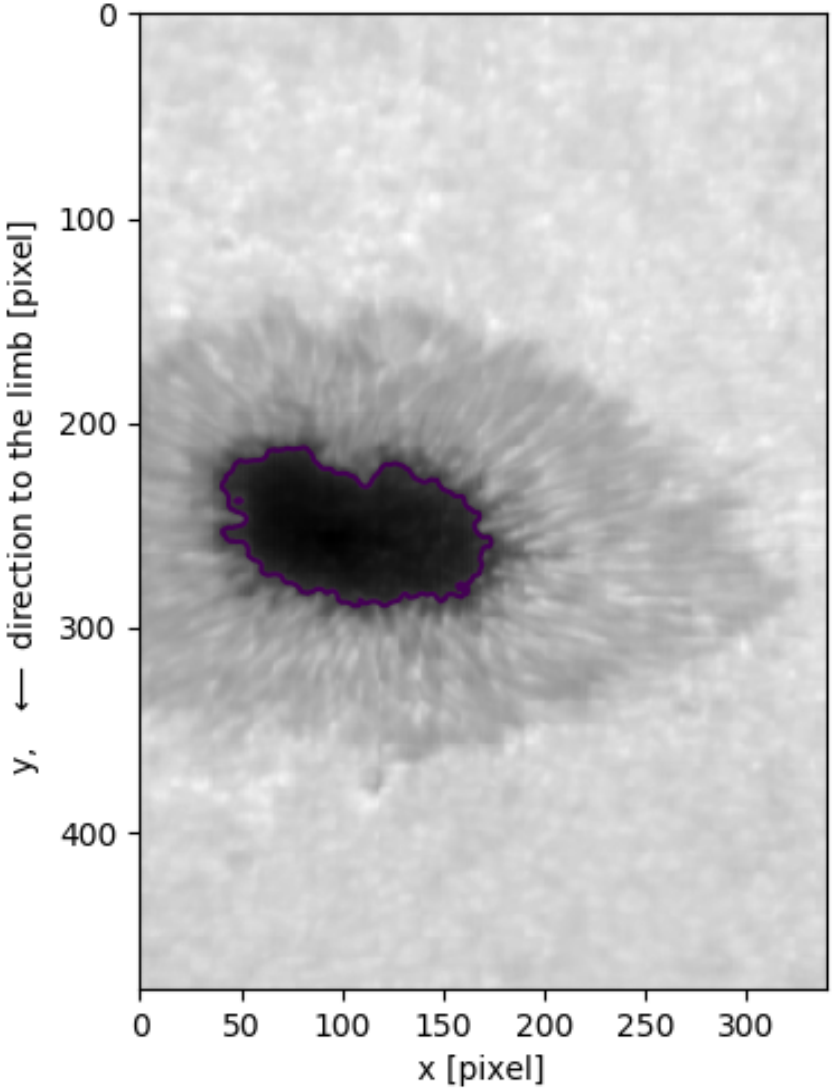
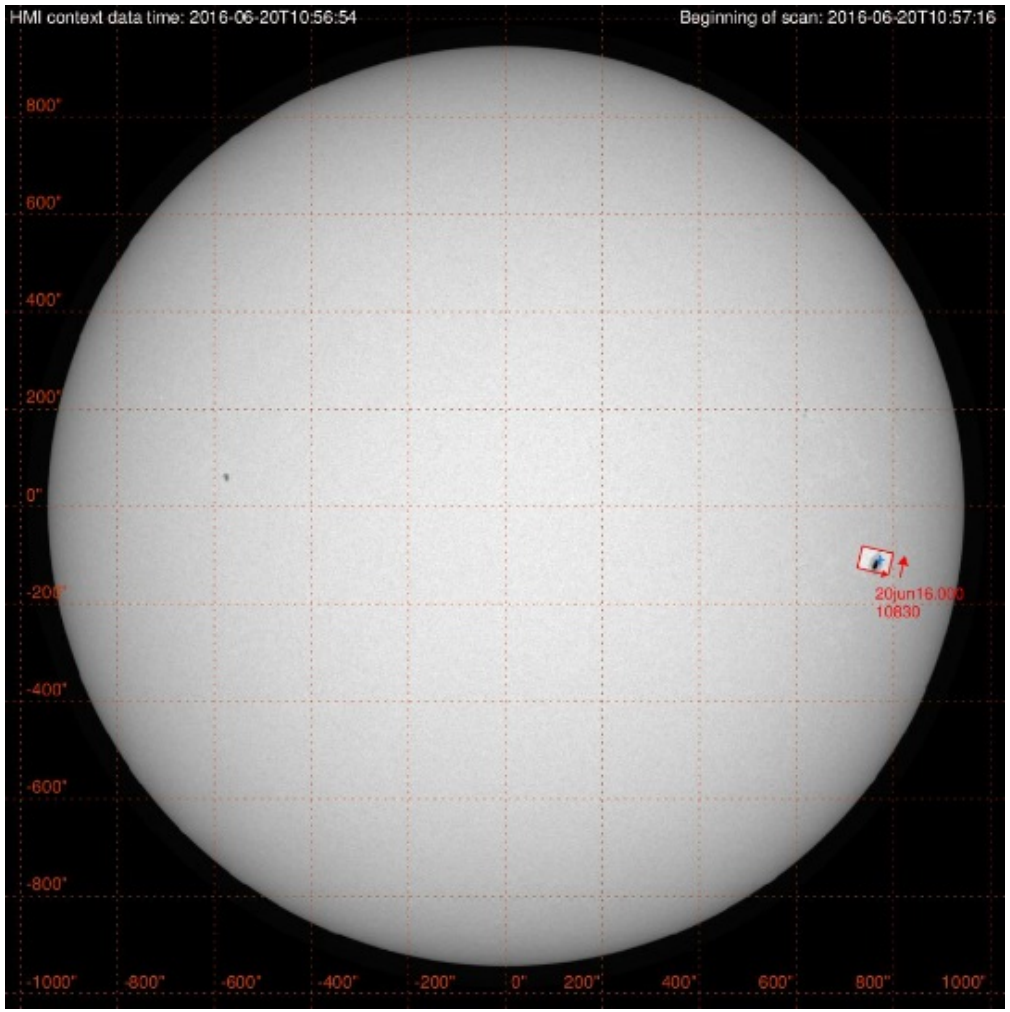
About me

Observed data

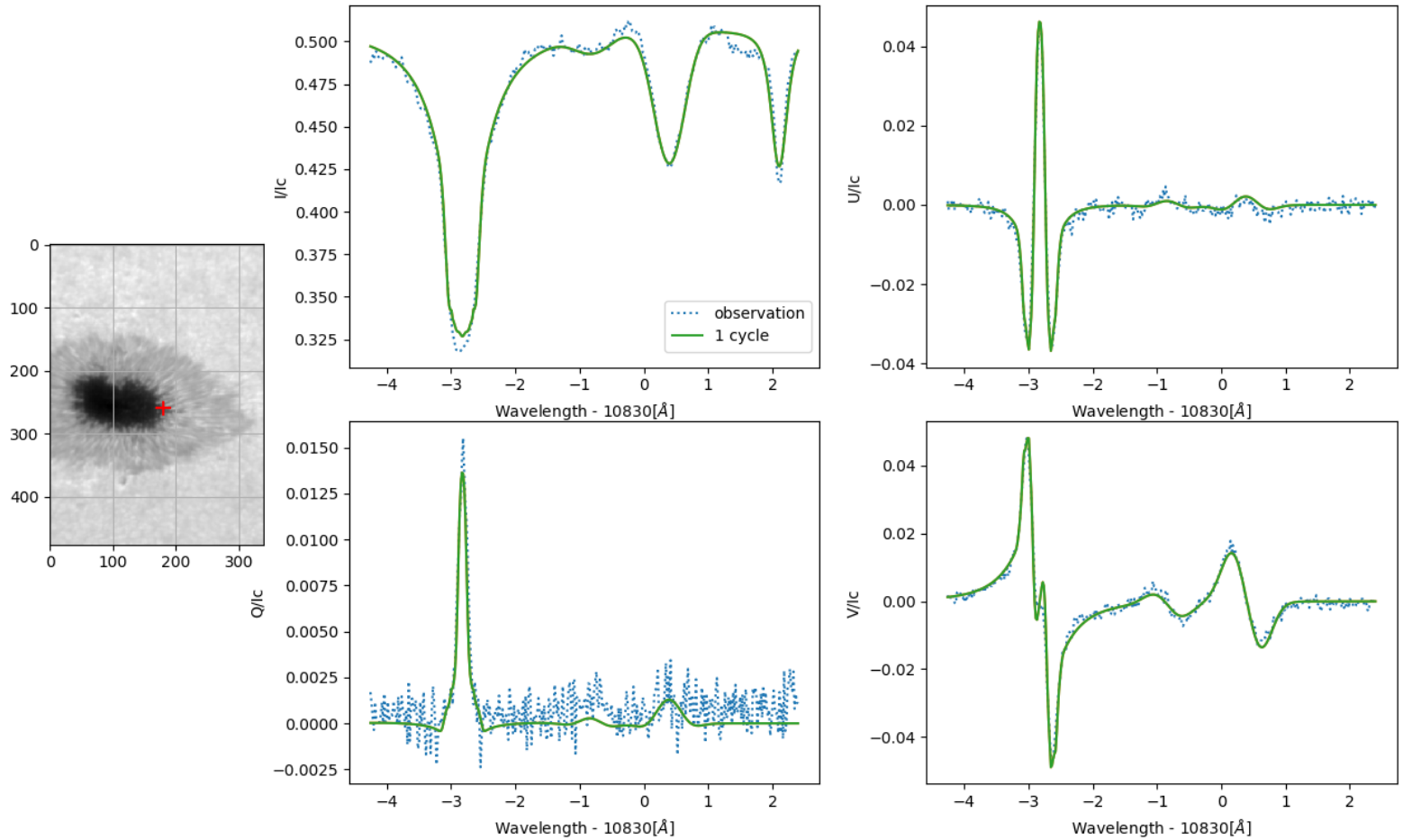
- spectro-polarimetric data obtained with GRIS (GREGOR)
- observed area: AR 12553
- observed date: 20.6.2016
- the observed spectral region in infrared at 1 micron
- the photospheric spectral lines - Si 10827 Å and Ca 10839 Å
- the chromospheric He I 10830 Å triplet


0
100
200
300
400
y, ⟵ direction to the limb [pixel]
0
50
100
150
200
250
300
x [pixel]


HMI context data time: 2016-06-20T10:56:54
Beginning of scan: 2016-06-20T10:57:16
800"
600"
400"
200"
0"
-200"
-400"
-600"
-800"
-1000"
-800"
-600"
-400"
-200"
0"
200"
400"
600"
800"
1000"
20jun16.0
10830

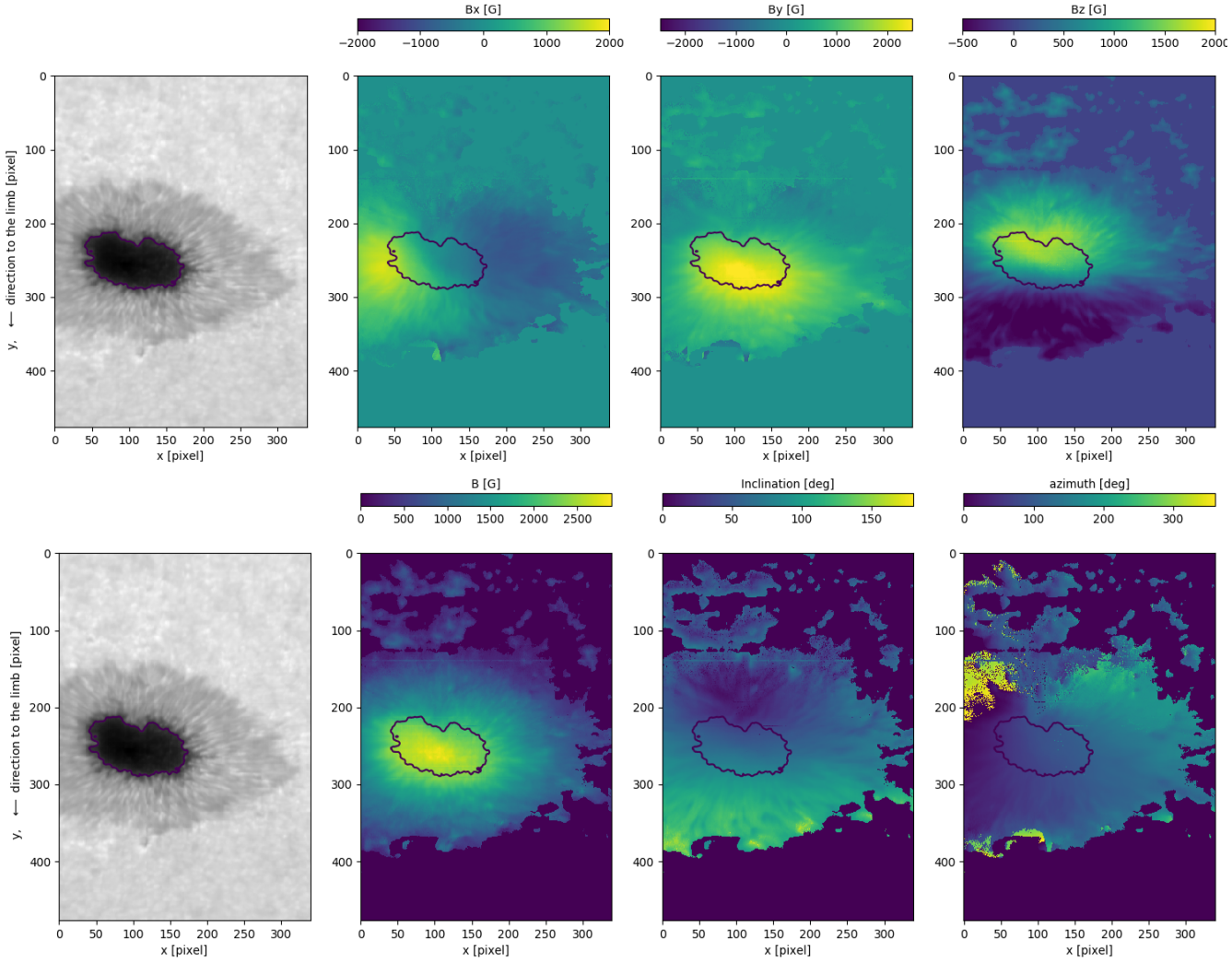
Inversion codes

- SIR – Si I 10827 Å
- HAZEL (2.0) – He I 10830 Å

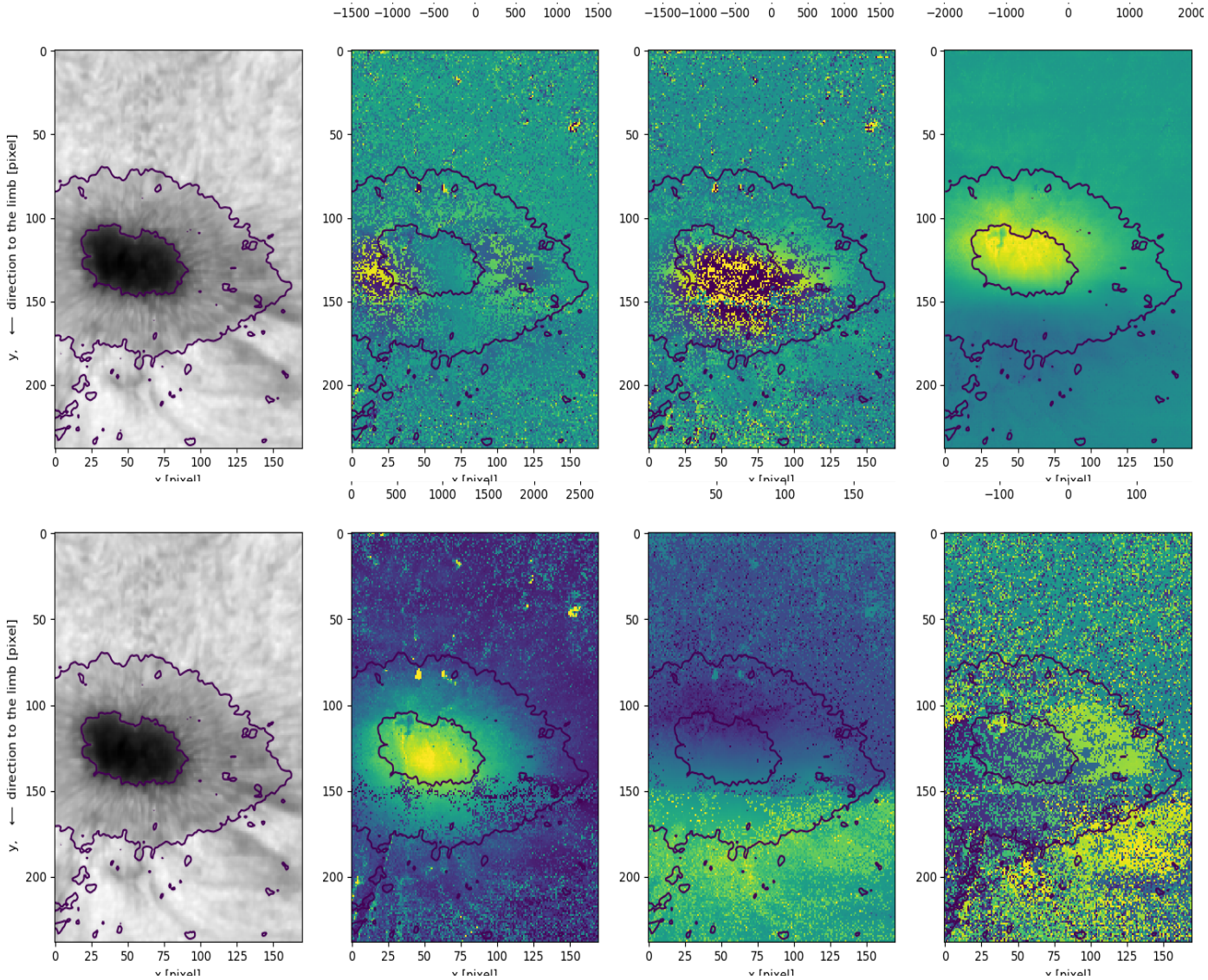


- the inferred magnetic field for chromosphere are B_x= 1120 G, B_y=1490 G, B_z=900 G, the inferred thermal velocity is Δv=7 kms^{-1}, the doppler velocity v=1.5 km/s and the optical depth τ=0.7
- the inferred physical parameters for photosphere are B_x=1200 G, B_y=-1600 G, B_z=680 G and doppler velocity is v=2.2 kms^{-1}

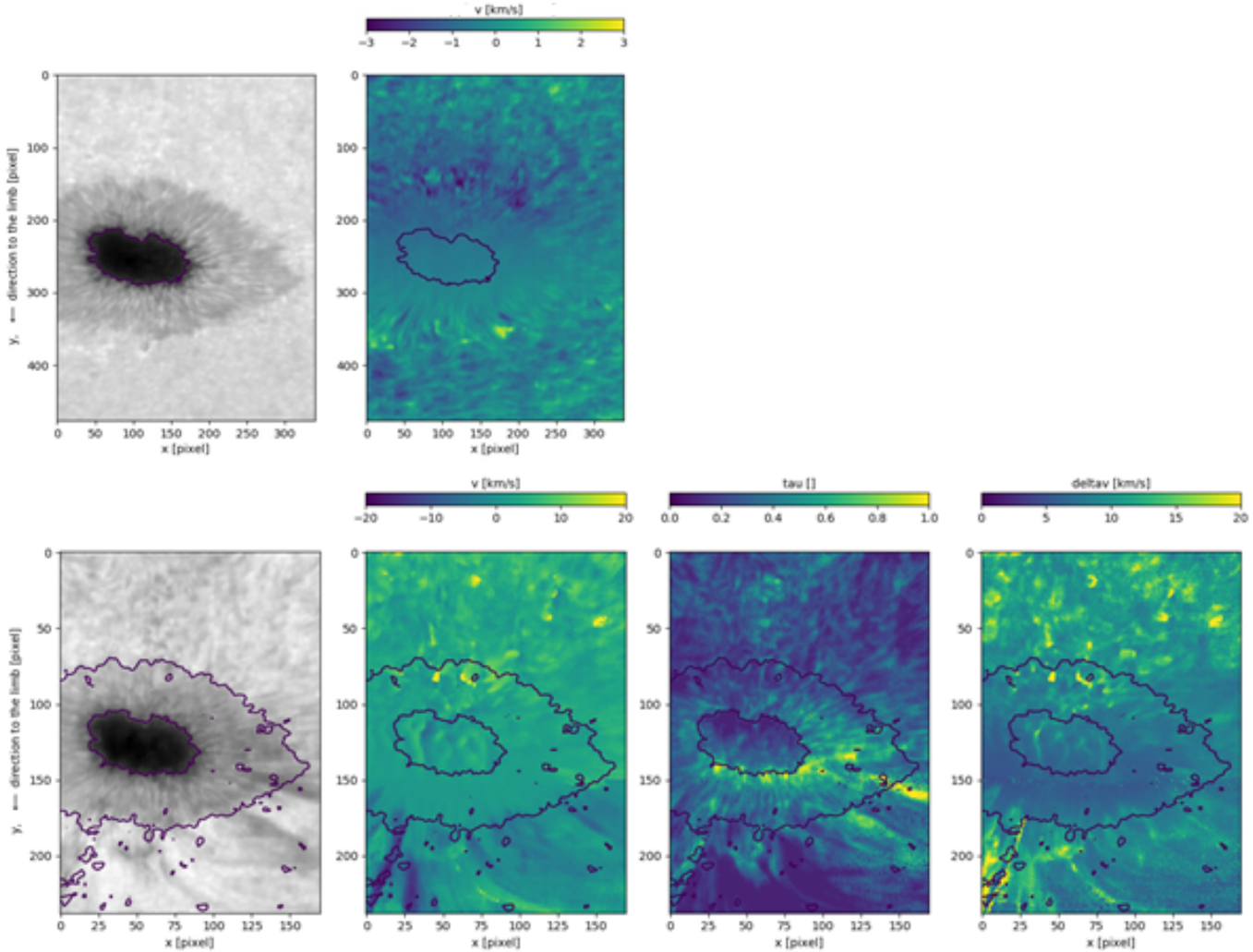
Vector of magnetic field in photosphere

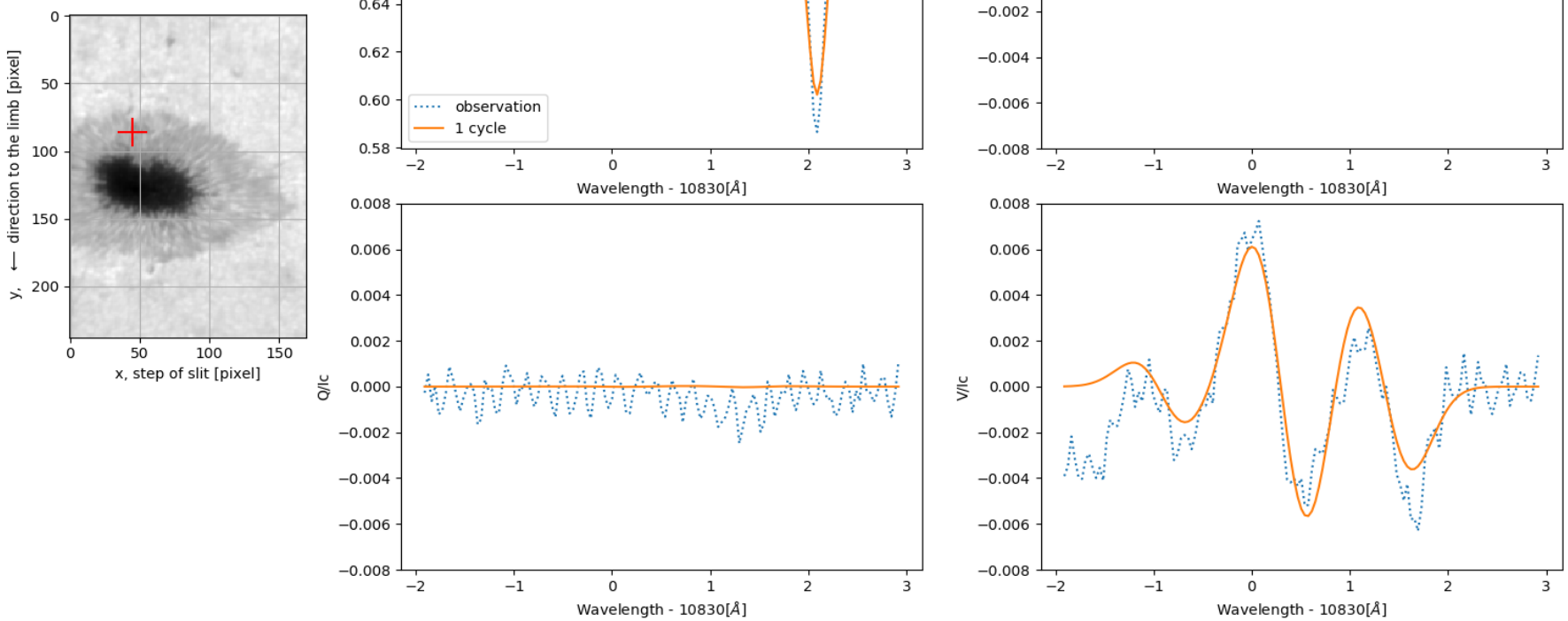


Vector of magnetic field in chromosphere



Physical parameters in the photosphere and chromosphere




y, ⟵ direction to the limb [pixel]
x, step of slit [pixel]
I/Ic
observation
1 cycle
Wavelength - 10830[Å]
U/Ic
Wavelength - 10830[Å]
Q/Ic
Wavelength - 10830[Å]
V/Ic
Wavelength - 10830[Å]