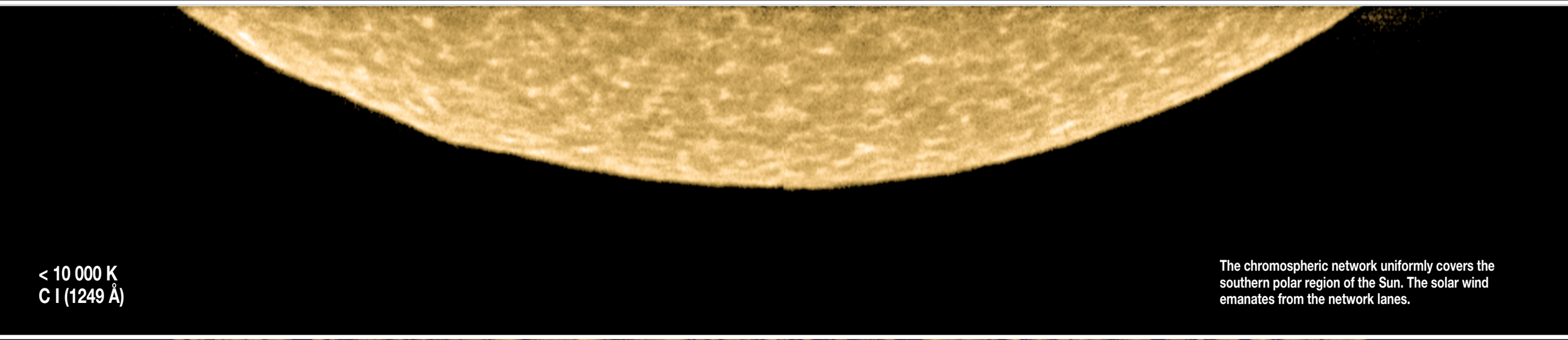
SUMER / SOHO

Anatomy of a Coronal Hole

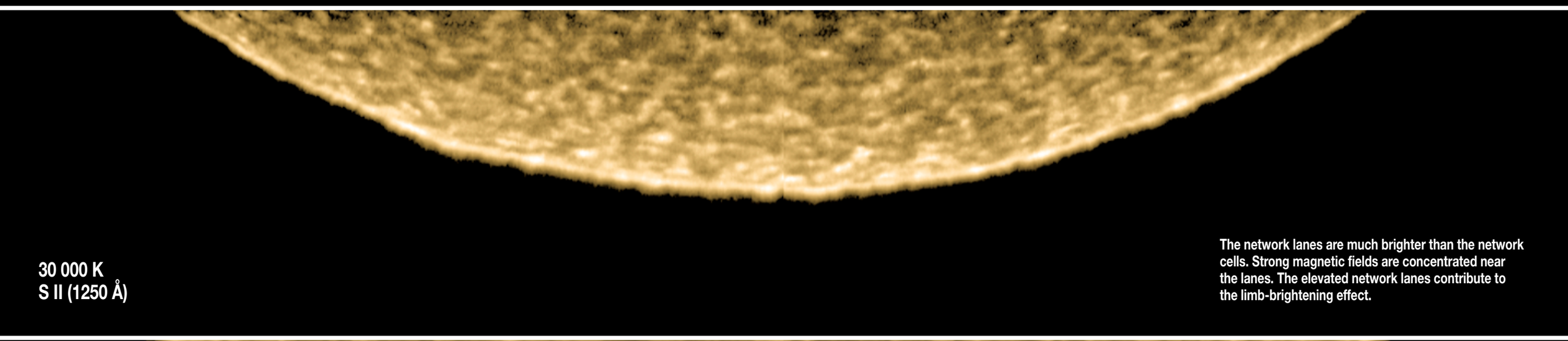
The south pole of the Sun seen in the light of several ultraviolet spectral lines formed at different temperatures

Raster scan images simultaneously obtained in July 1996 by the telescope and spectrometer SUMER (Solar Ultraviolet Measurements of Emitted Radiation) onboard the ESA/NASA Solar and Heliospheric Observatory (SOHO). SUMER was developed at the Max-Planck-Institut für Aeronomie (MPAE) as part of an international cooperation. It was financially supported by DLR, CNES, NASA, ESA, MPG and PTB.



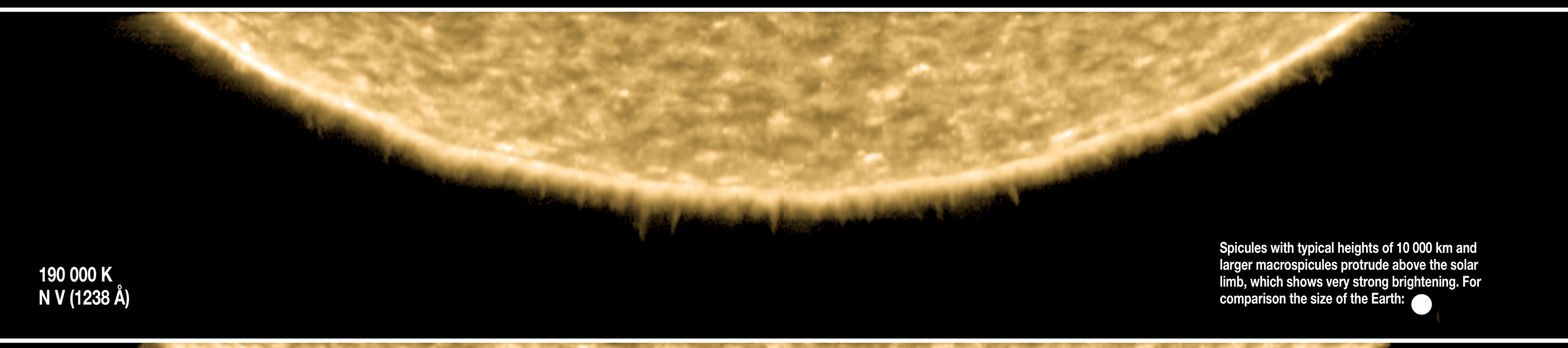
< 10 000 K
C I (1249 Å)

The chromospheric network uniformly covers the southern polar region of the Sun. The solar wind emanates from the network lanes.



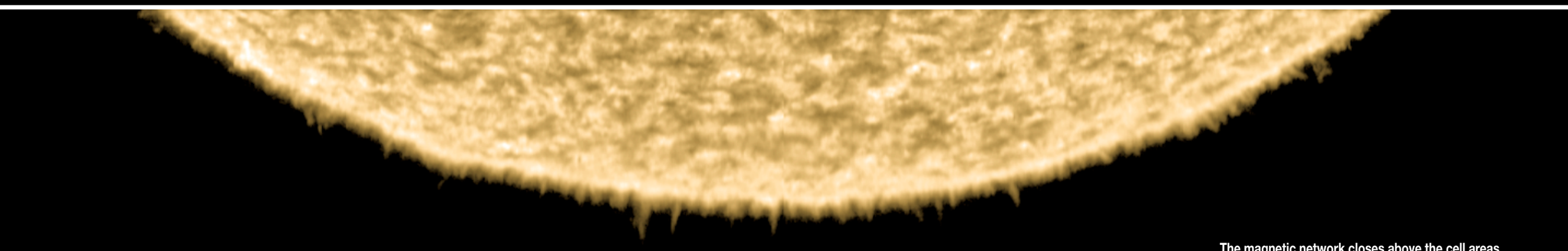
30 000 K
S II (1250 Å)

The network lanes are much brighter than the network cells. Strong magnetic fields are concentrated near the lanes. The elevated network lanes contribute to the limb-brightening effect.



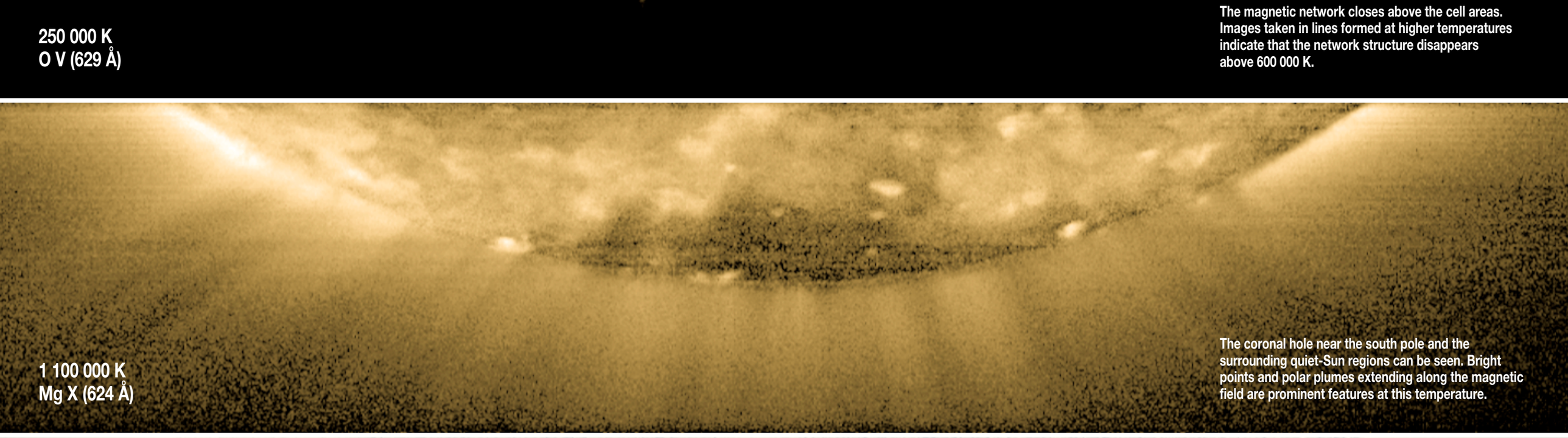
190 000 K
N V (1238 Å)

Spicules with typical heights of 10 000 km and larger macrospicules protrude above the solar limb, which shows very strong brightening. For comparison the size of the Earth: ●



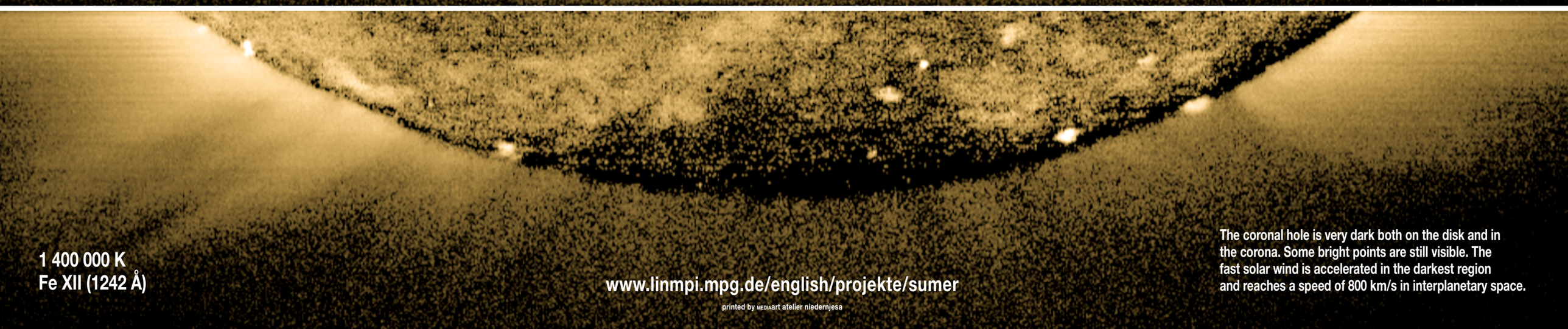
250 000 K
O V (629 Å)

The magnetic network closes above the cell areas. Images taken in lines formed at higher temperatures indicate that the network structure disappears above 600 000 K.



1 100 000 K
Mg X (624 Å)

The coronal hole near the south pole and the surrounding quiet-Sun regions can be seen. Bright points and polar plumes extending along the magnetic field are prominent features at this temperature.



1 400 000 K
Fe XII (1242 Å)

The coronal hole is very dark both on the disk and in the corona. Some bright points are still visible. The fast solar wind is accelerated in the darkest region and reaches a speed of 800 km/s in interplanetary space.

www.linmpi.mpg.de/english/projekte/sumer

printed by MEDIAart atelier niedernjesa