Color-picture part

4.1.1.4 Solar photosphere and chromosphere

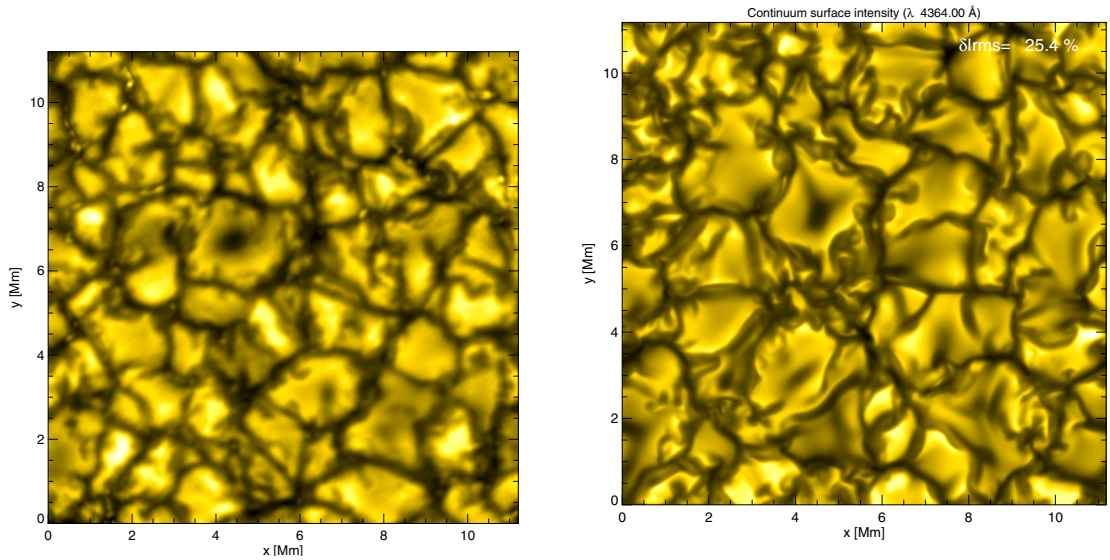

Fig. 12. Left: Quiet solar granulation as observed with the 1m Swedish Solar Telescope (courtesy Mats Carlsson 2004). **Right:** High-resolution CO5BOLD simulation of solar surface convection on a $n_x \times n_y \times n_z = 400 \times 400 \times 165$ grid. Both images show the emergent continuum intensity (using identical scaling) at λ 436.4 nm in a field measuring 15′′ × 15′′ (11 × 11 Mm). Reproduced from [07Ste1].

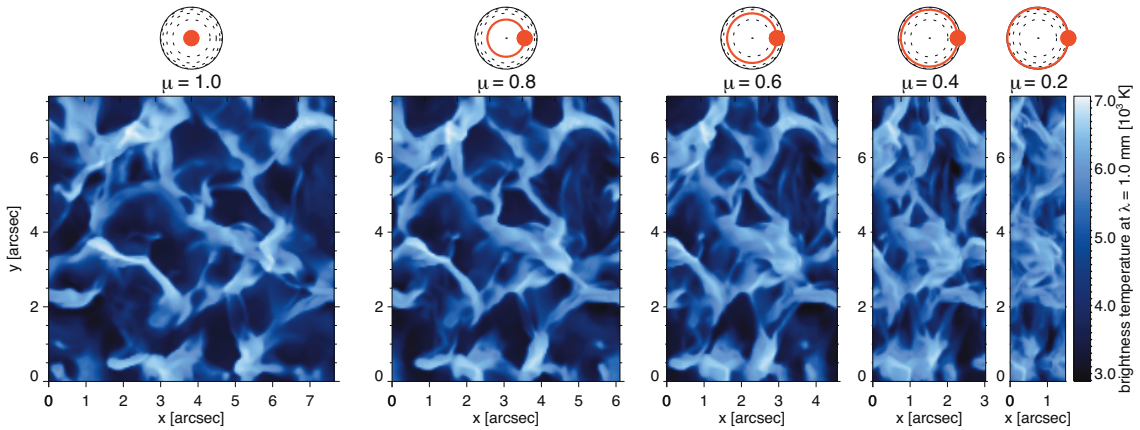

Fig. 19. Top: Gas temperature at a geometric height of z = 1000 km above τ_{Ross} = 1 in the nonmagnetic 3D chromospheric model by [04Wed]. Temperatures range from 2000 K (black) to 7000 K (white). **Bottom:** Brightness temperature T_b of synthetic continuum images at λ 1 mm, computed from the snapshot shown at left for different inclination angles (μ = 1: disk-center, μ = 0.2: close to limb). T_b ranges from 3000 K (black) to 7000 K (white). Adapted from [07Wed3].

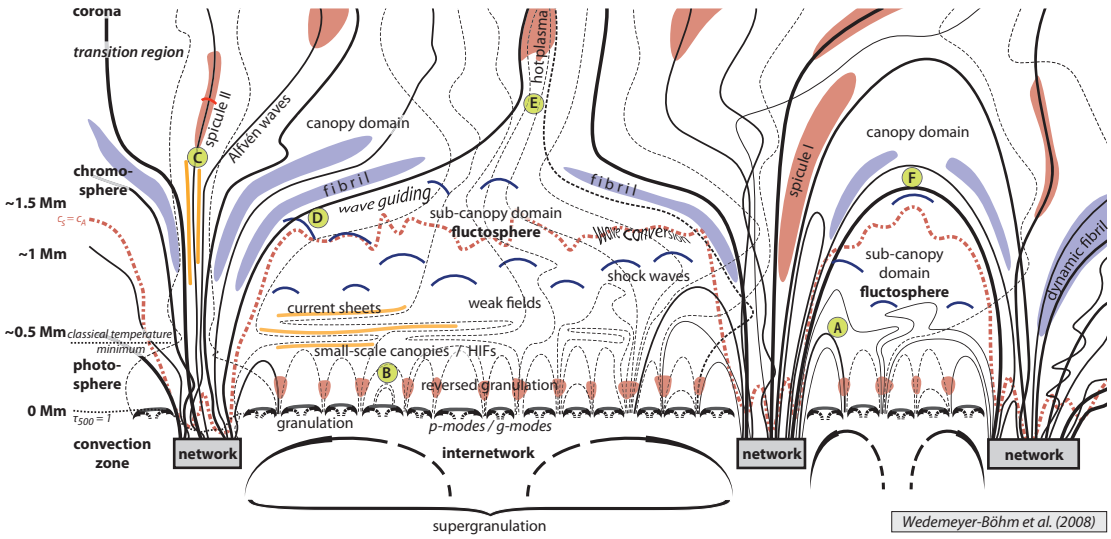

Fig. 20. Schematic, simplified structure of the lower atmosphere of the quiet Sun (dimensions not to scale). Reproduced from [08Wed1].

4.1.1.5 Solar transition region and quiet corona

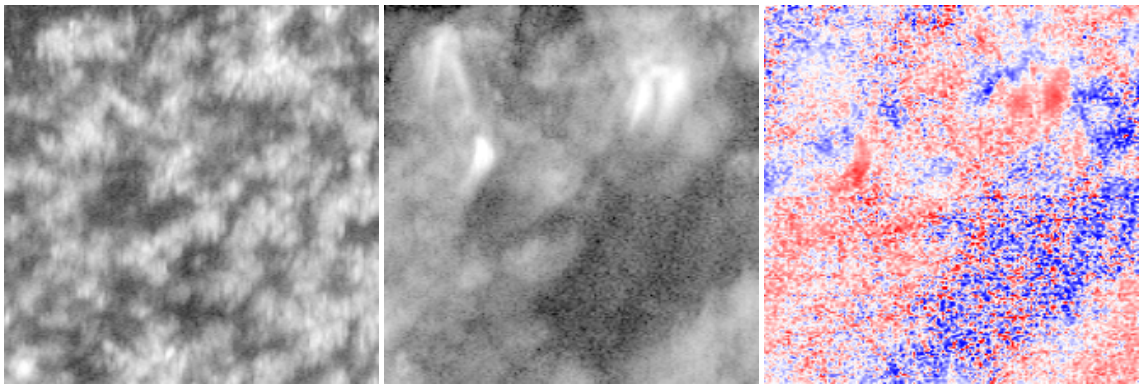

Fig. 6. A small coronal hole seen on the solar disk in the Mg IX (70.6 nm) line (middle panel). In the continuum near 71 nm (on the left) the magnetic network structure is the same inside and outside the coronal hole. The Doppler image shows LOS velocities of ±30 km s^{-1} with outflows (blue shifts) in the hole area.

4.1.2 Solar activity

4.1.2.1 Active regions

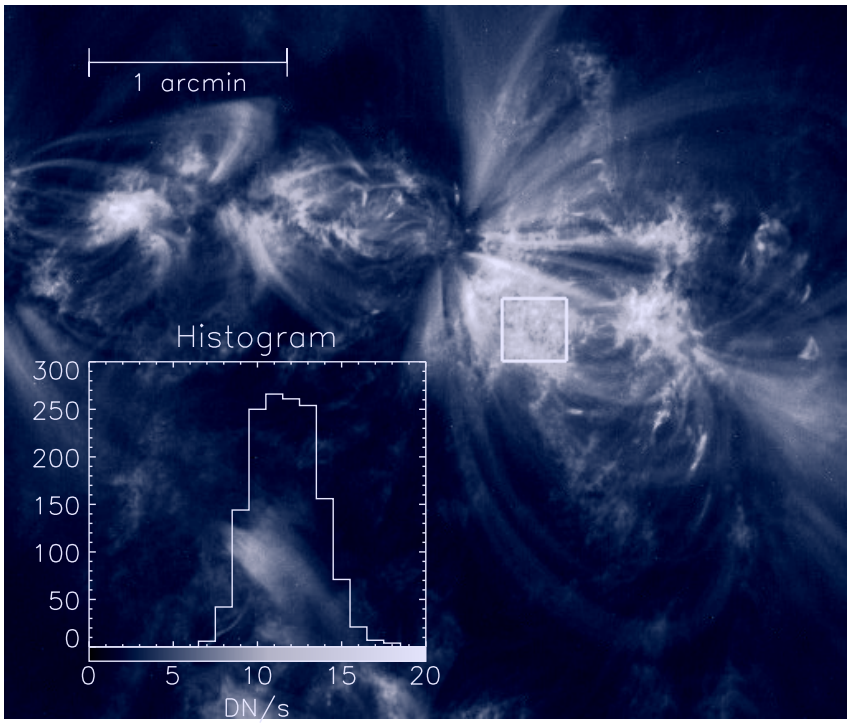

Fig. 2. Moss region observed in the 17.1 nm wavelength band on 6 June 1999. The square box with an angular size of 19′′ × 19′′ contains bright moss structures with a brightness distribution given in the histogram inset. AR loops can be seen in the neighbourhood (from [00Mar]).

4.1.2.2 Solar activity cycle

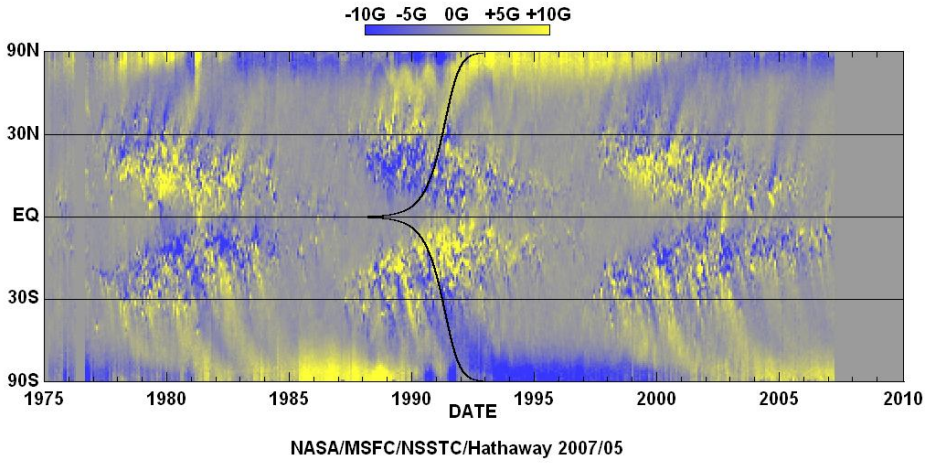

Fig. 5. Butterfly diagram of the radial component of the solar magnetic field [03Hat]. For each Carrington rotation, the magnetic flux is summed in longitude in each latitude bin.

4.1.2.3 Sun spots

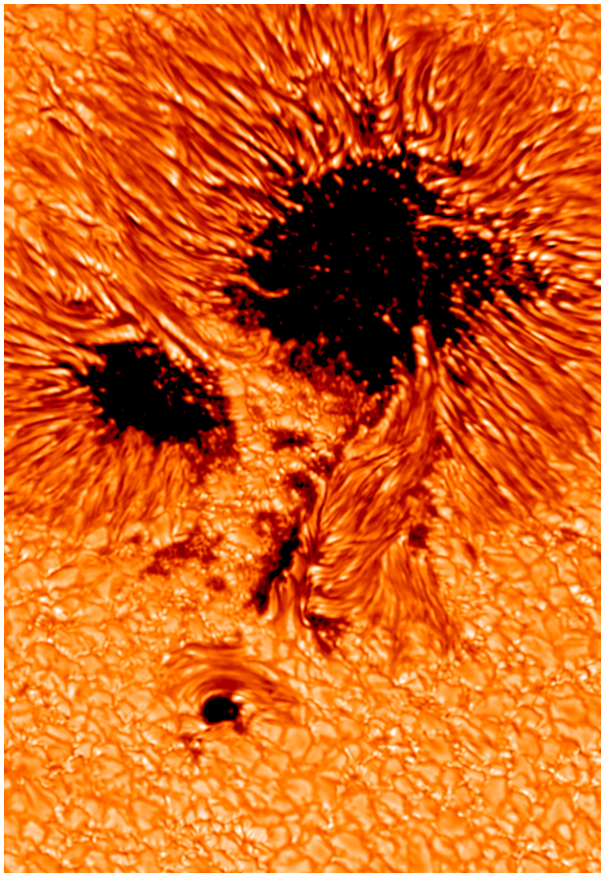

Fig. 1. Image of a complex sunspot with two umbrae observed in the red continuum with the Swedish Solar Telescope on La Palma. With kind permission of J. Hirzberger.

4.1.2.5 Prominences and ejecta

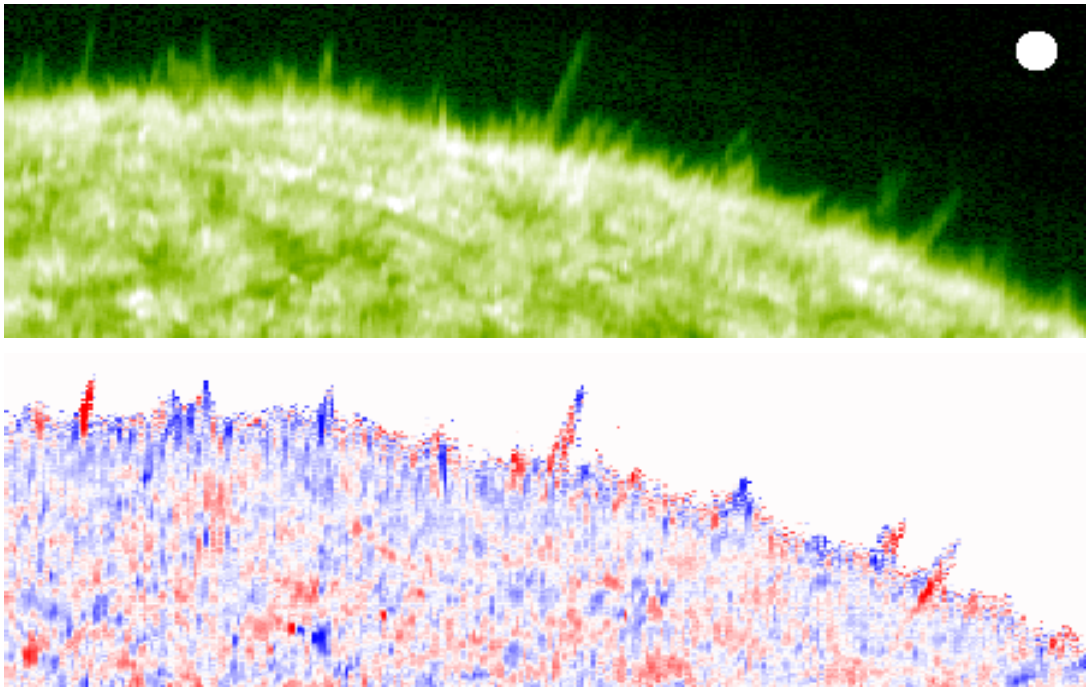

Fig 2. Spicule activity at the solar limb in O V emission at 62.973 nm with the corresponding Doppler diagram in the lower panel. The frame dimensions are 310 Mm × 100 Mm. The tallest feature protrudes approximately 40 Mm from the limb and is a macrospicule judged by its length. The size of the Earth is shown for comparison in the upper panel.

4.2 The planets and their satellites

4.2.1 Introduction

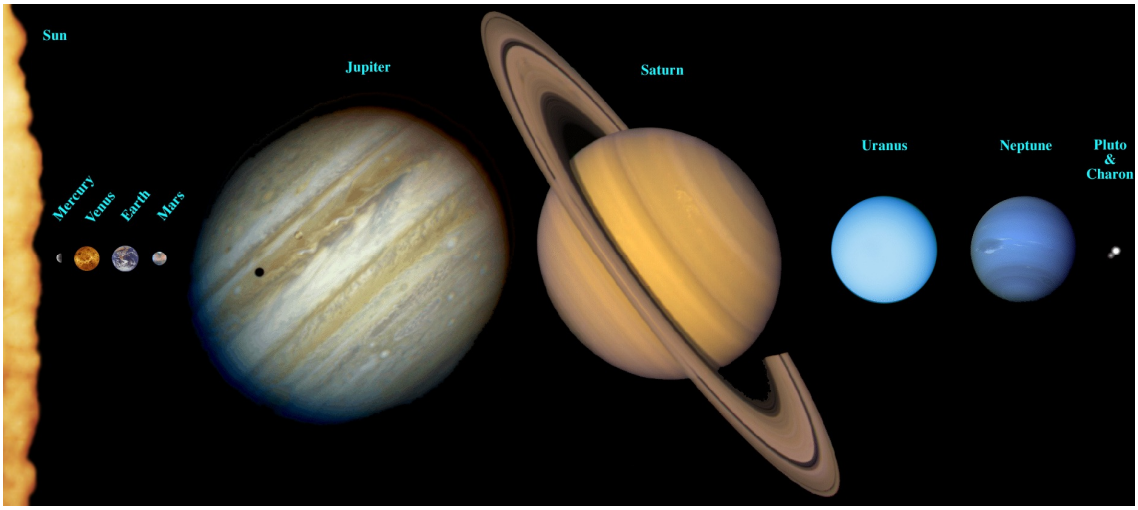

Fig. 1. The eight planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune are shown with their correct relative sizes (the distances are not to scale). The compilation also includes the dwarf planet Pluto and its moon Charon. The dark spot on Jupiter is the shadow of Io, one of the four Galilean Moons.©C.J. Hamilton

4.2.3 Terrestrial planets and satellites

4.2.3.1 Geodetic and geophysical data

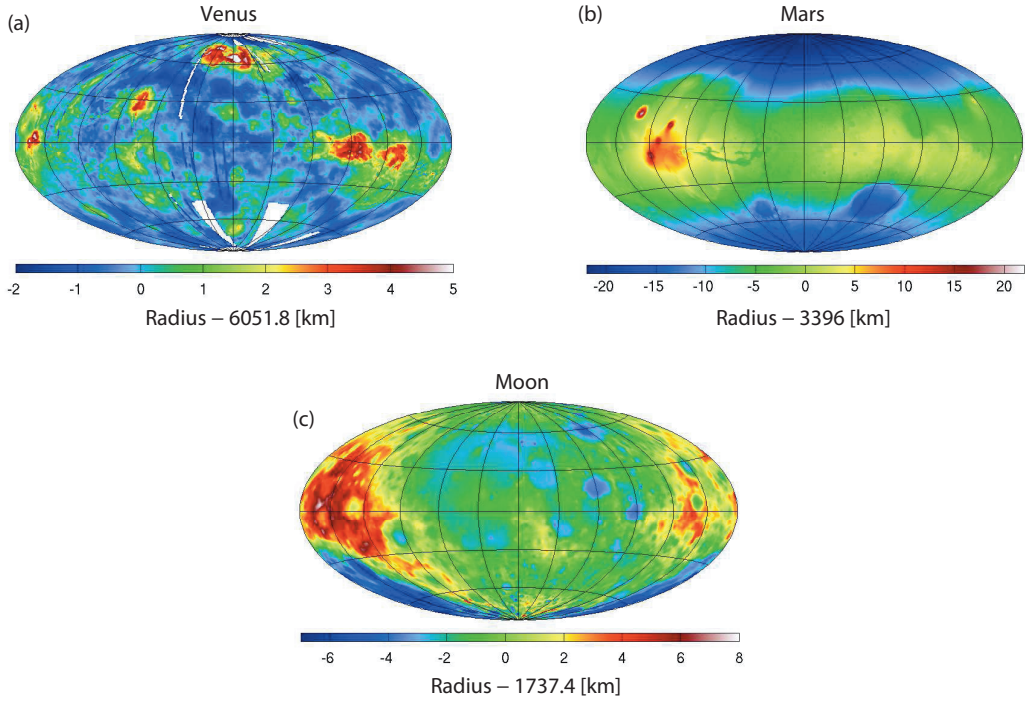

Fig. 2. Planetary radii models of Venus, Mars and the Moon. All images are in a Hammer projection with a central meridian of 0° W. The values are referenced to a sphere of radius 6051.8, 3396 and 1737.4 km for Venus, Mars and the Moon, respectively. Note the data gaps for Venus and the rotational flattening present for Mars.

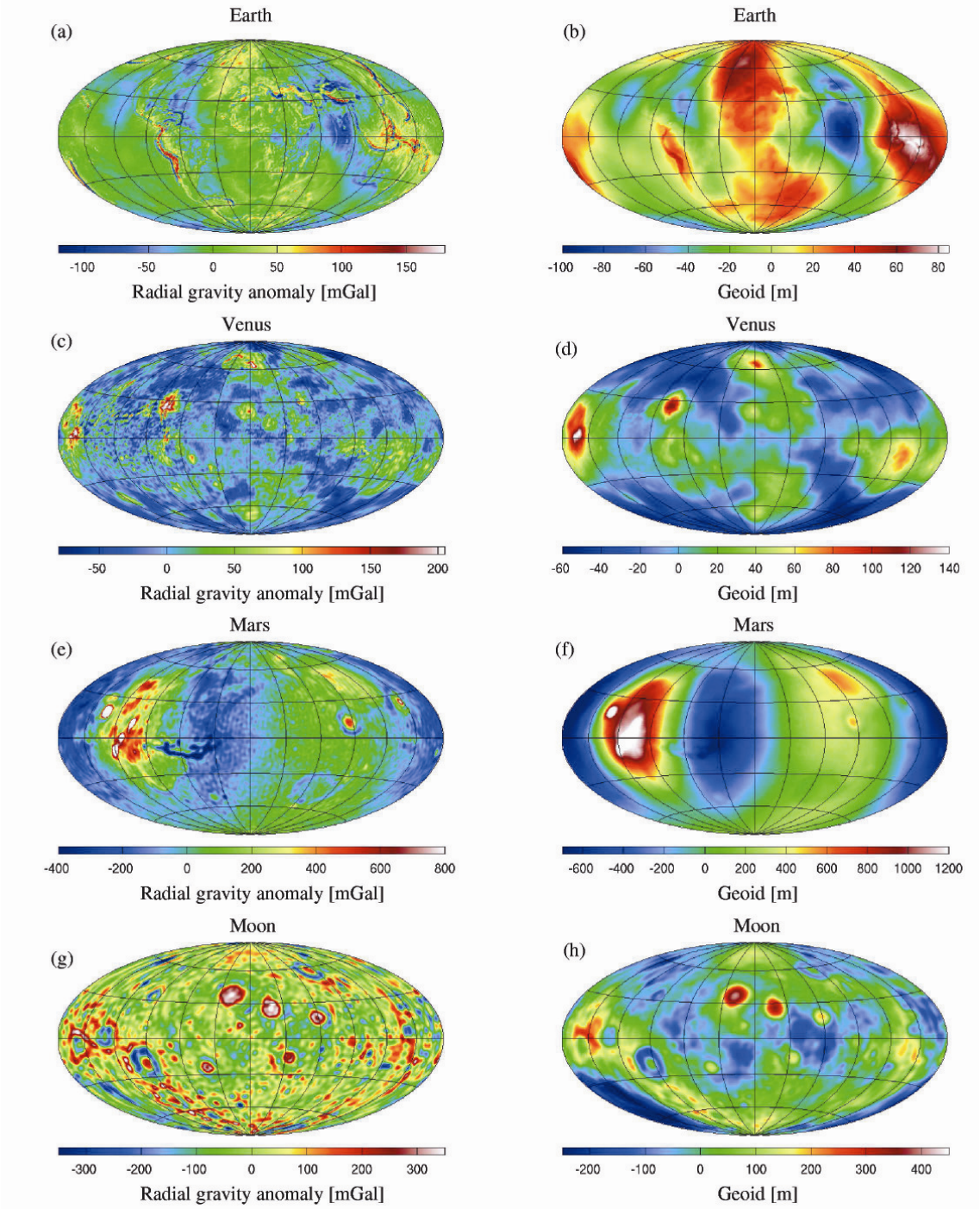

Fig. 3. Radial gravity anomaly g_r and geoid height N for the Earth, Venus, Mars and the Moon. All images are in a Hammer projection with a central meridian of 0° W. (a)-(b) g_r and N for the Earth, evaluating the model EIGEN-GL04C [08För] at a reference radius R_p = 6378.13 km and setting the zonal degree-2 term C_{20} to zero. (c)-(d) g_r and N for Venus, evaluating the model SHGJ180 [06Rap] at R_p = 6051 km (e)-(f) g_r and N for Mars, evaluating the model MGS95J [05Tyl] at R_p = 3396 km and setting the zonal degree-2 term C_{20} to zero. (g)-(h) g_r and N for the Moon, evaluating the model LP165P [97Lem] at R_p = 1738 km and setting the zonal degree-2 term C_{20} and C_{22} to zero.