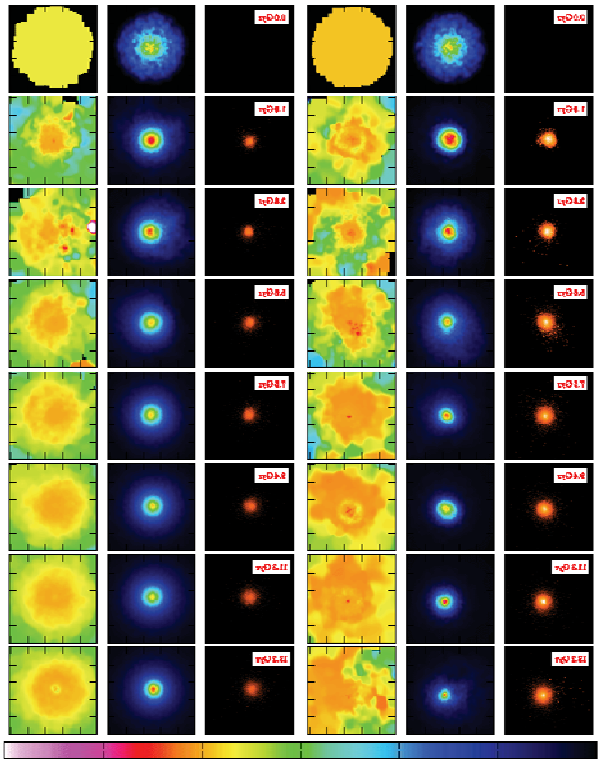
Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

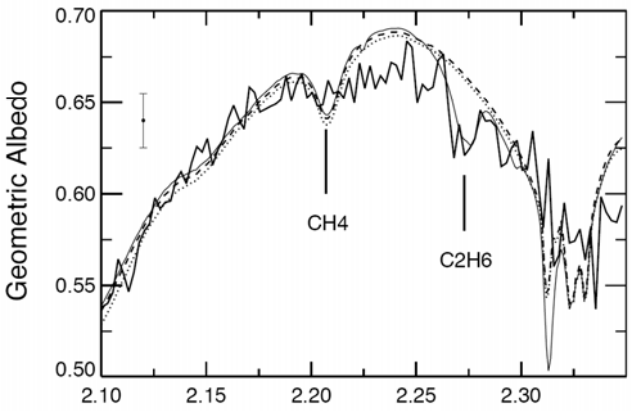
Volume 501-1 (July I 2009)



In section 4. Extragalactic astronomy

"The dynamical and chemical evolution of dwarf spheroidal galaxies", by Y. Revaz, P. Jablonka, T. Sawala, V. Hill, B. Letarte, M. Irwin, G. Battaglia, A. Helmi, M. D. Shetrone, E. Tolstoy, K.A. Venn, A&A 501, p. 189

Dwarf spheroidal galaxies (dSph) form a specific class among dwarf systems. Their formation mechanisms are still unclear, in particular the relative role of internal processes versus galaxy interactions and stripping. The authors have succeeded in reproducing the main observed relations of dSph (luminosity-mass, luminosity-metallicity, [Mg/Fe] vs [Fe/H]) through Nbody/Tree-SPH simulations of isolated dSphs alone. They show that the key physical parameter for the dSph evolution is the initial total mass.
With only intrinsic processes, they cannot however account for the observed absence of interstellar gas, which remains at the end of the simulation. The removal of gas requires external processes, such as tidal forces or ram-pressure stripping.



In section 10. Planets and planetary systems

"Composition of KBO (50000) Quaoar", by C. M. Dalle Ore, M.A. Barucci et al., A&A 501, p. 349

Quaoar is one of the largest transneptunian objects found so far, with a diameter ~1300km (about 1/3 that of our Moon) and an orbital distance of 43.6 AU. But what is the composition of this remote world? In this issue, Dalle Ore et al. address this question by combining new infrared (3.5 and 4.6 microns) Spitzer data with visible and near-infrared (0.4-2.3 microns) VLT observations to detailed radiative transfer modeling. They confirm the presence of crystalline H2O and CH4 ice, as well as C2H6 and organic materials. They also suggest that N2 and amorphous H2O ice may be present on the surface, thus implying that this dwarf planet is quite similar to Triton and Pluto.