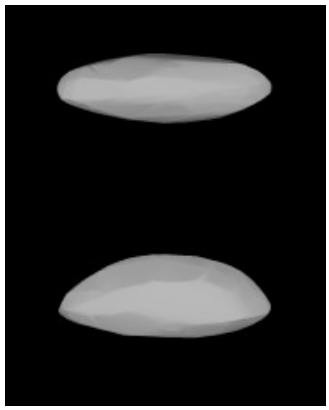
Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

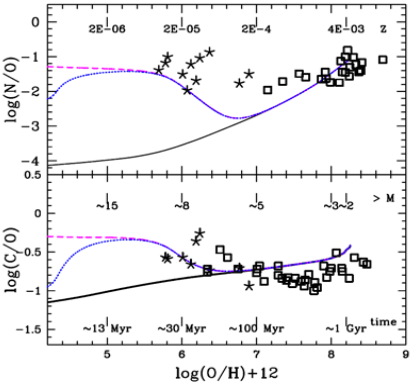
Volume 489-2 (October II 2008)

In section 1. Letters



"Detection of the YORP effect in asteroid (1620) Geographos", by J. Ďurech et al., A&A 489, p. L25

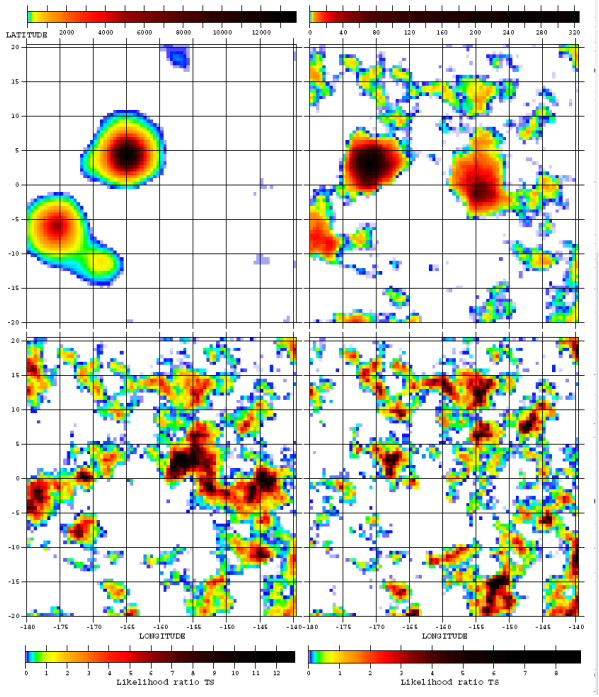
The authors combine new and old photometric observations of the asteroid (1620) Geographos, spanning the period from 1969 to 2008. They show that the rotation rate of the asteroid accelerated during this period and that it is a consequence of the so-called YORP effect (for Yarkovsky-O'Keefe-Radzievskii-Paddack) in which anisotropic reflection and thermal emission causes a modification of the rotation rate of small asteroids. It is only the third time that a YORP effect has been detected in an asteroid. This discovery will help for better understanding this mechanism, which has recently been shown itself to be a primary cause of the formation of binary asteroids (Walsh et al. Nature 2008).



In section 7. Stellar structure and evolution

"Effects of rotation on the evolution of primordial stars", by S. Ekström, G. Meynet, C. Chiappini, R. Hirschi, and A. Maeder, A&A 489, p. 685

The first stars in the universe were probably massive and rotating rapidly. Here, the effects of rotation on those stars are investigated. In particular, a significant enrichment of the stellar surface during the pre-SN evolution is found, which makes these stars pollute their environment even if their cores were to collapse into back holes at the end of their evolution.



In section 14. Catalogs and data

"A revised catalogue of EGRET gamma-ray sources", by J.M. Casandjian and I. A. Grenier, A&A 489, p. 849

The authors present a complete re-analysis of the gamma-ray data set from the EGRET detector onboard the Compton Gamma Ray Observatory. Instead of the previous 271 point sources, they found only 188, more than one third less. This revision comes from a new interpretation of the detected signals: much of the flux is coming from interstellar clouds (either atomic, molecular, or dark clouds identified only recently thanks to their cold dust emission), and not from point sources.