

A New Family of Planets: Ocean-Planets

Alain Léger¹, F. Selsis², C. Sotin³, T. Guillot⁴, D. Despois⁵,
D. Mawet¹, M. Ollivier¹, A. Labque¹, C. Valette¹,
F. Brachet¹, B. Chazelas¹, and H. Lammer⁶

(Email: Alain.Leger@ias.fr)

¹Institut d'Astrophysique Spatiale, CNRS, Université Paris-Sud, Orsay, France

²Centro de Astrobiología (CSIC/INTA), Instituto Nacional de Técnica Aeroespacial, Madrid, Spain

³Laboratoire de Planetologie et Geodynamique, Université de Nantes, Nantes, France

⁴Observatoire de la Côte d'Azur, Nice, France

⁵Observatoire de Bordeaux (INSU/CNRS), Floirac, France

⁶Space Research Institute, Austrian Academy of Sciences, Graz, Austria

A new family of planets is considered which is in between the rocky terrestrial planets and the gaseous giants – Ocean-Planets. We present the possible formation, composition and internal structure of these putative planets. We consider their oceans, as well as their possible exobiology interest. These exoplanets should be detectable by Space missions such as Eddington, Kepler, and possibly COROT (launch in 2006). They have a density lower than that of rocky planets. Their rather large radius would make them attractive targets for exoplanet spectroscopic missions such as TPF/Darwin, all the more because a robust biosignature appears to exist.

