Journal of Cosmology, Volume 24, Number 13, pp 12281-12282

Russian spacecraft result confirms validity of *panspermia*

Chandra Wickramasinghe

Buckingham Centre for Astrobiology, University of Buckingham, UK
Institute for the Study of Panspermia and Astroeconomics, Gifu, Japan
University of Peradeniya, Peradeniya, Sri Lanka

The theory of Panspermia posits that seeds of life in the form of bacteria and viruses are readily exchanged between planetary habitats, whilst the origin of life itself remains an unsolved and probably intractable problem for science[1]. The galaxy-wide transmission of such seeds from a single starting point appears to be assured because the distance between habitable planets is now reckoned of the order of several light years, and also because a single source of life such as the Earth revolves in an orbit around the centre of the Galaxy and can spread seeds of life on a wide scale[1,2]. The recent discoveries of nearly a thousand habitable planets in the Kepler Satellite project, as well as the extreme hardihood of bacteria that has been demonstrated in many laboratory experiments, support this point of view. However, direct experiments that show survival during high speed ejection from a planet followed by re-entry has so far been lacking. This deficiency has recently been made good by a Russian study.

The Foton-M4 space capsule carrying several science experiments was launched on 18th July on a Soyuz 2-1A rocket and remained in a 250 by 550 km Earth orbit from 18 July to 1 September 2014. One of the experiments involved the placement of bacteria embedded in clay on the surface of the module so as to mimic the panspermic transport of microorganisms between planets. The results of this unique experiment were reported by Alexander Slobodkin, of the Institute of Microbiology of the Russian Academy of Sciences. The announcement was made at the 15th Conference on Space Biology and Aerospace Medicine in Moscow that thermophilic bacteria, deposited in cells of basalt on the surface of the spacecraft, survived from launch at high speed, through a 6 week Earth orbit period with exposure to cosmic rays and re-entry onto a planet. For the first time the conditions of ejection of bacteria from a planet like Earth and re-entry were realistically simulated. Although only a small fraction of the population appears to have retained viability, this is more than sufficient to make the case for panspermia. The situation is akin to the sowing of seeds in the wind. A large fraction might perish, but so many are the seeds that a few will always succeed to survive. The results of the Russian experiment provides the first direct support for the theory of panspermia[3] .

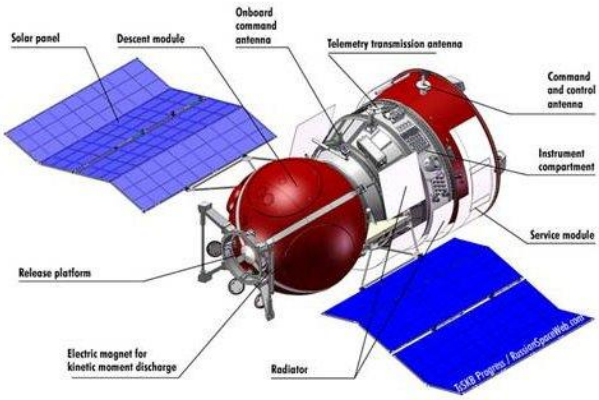

Fig.1 Soyuz at blast off and Foton-M4 module/satellite

1. Wickramasinghe, N.C., 2014. *The Search for Our Cosmic Ancestry* (World Scientific)
2. Hoyle, F. and Wickramasinghe, N.C., 1981. In: C. Ponnamperuma, ed. *Comets and the Origin of Life*. Dordrecht: D. Reidel, pp. 227.
3. http://en.itar-tass.com/non-political/760517)