

Earth Probe From a Distant World—How Firmly Linked is Life to Its Planet?

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As a thought exercise, imagine that the Earth were visited by a robotic spacecraft designed by intelligent aliens to determine the status and evolutionary history of the planet's astronomical setting, surficial environment, and biotic makeup. By arrival at Earth, however, virtually all of the spacecraft's science equipment has failed. No measurements can be made of any physical parameter – neither of planetary mass, rotation, inclination, distance from nearby star(s), nor of planetary temperature, pH range, atmospheric composition, water availability, etc. Indeed, only one package of experiments has survived the journey, a simple life science module designed to collect a representative “Noah's Ark” of Earth's lifeforms and transport the menagerie to the aliens' home base for detailed study. How much of the Earth's present and past, biologic and physical, could the aliens ferret out? How firmly linked is life to its planet? Can the alien scientists save the mission?