

Abstract

Paper Title: The NASA Discovery 5, Genesis Mission

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sample return
"Genesis" is the NASA Discovery 5 mission to solar wind return samples to the Earth for analyses in terrestrial laboratories. This will significantly increase our knowledge of the chemical and isotopic composition of the solar system. This knowledge will be used to address questions about the materials and processes involved in the origins of the solar system. While oxygen, nitrogen and noble gas isotopes and elements comprise the primary objectives, Genesis has a total of 19 prioritized measurement objectives. In order to gather the materials to accomplish these objectives, the mission will place a spacecraft outside the earth's magnetosphere, in an orbit about the first Earth-Sun libration point, for two years, to collect solar wind samples by implantation into passive collectors made of ultra-pure materials. Two solar wind monitors will be used to determine solar wind regime and speed to control the collection. The collected samples are returned to earth and recovered at a U.S. test range. The launch of Genesis is currently scheduled for January 2001 with sample return in August 2003.