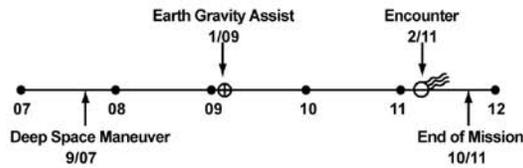


STARDUST-NExT



About Stardust-NExT

Stardust-New Exploration of comet Tempel 1 is a low-cost, low-risk mission that reuses the Stardust spacecraft to fly within 200 km of Tempel 1, enhancing studies previously initiated by NASA's Deep Impact mission on July 4, 2005.

The exploration of comets has been assigned high priority by NASA because these primitive bodies may hold the secrets that unlock the mystery about the formation of Earth and our solar system. By investigating comets, we can explore the mystery of life and the wonders of the universe.

Stardust-NExT will:

- Image the nucleus (and jets) at resolutions as high as 12 m/pixel
- Measure the flux, size distribution, and composition of dust surrounding the nucleus

Important Science

Stardust-NExT will be the FIRST mission to:

- Document the surface changes on a comet's nucleus between successive perihelion passages
- Measure with identical instruments the dust properties of two separate comets (Wild 2 and Tempel 1)

Stardust-NExT is the ONLY mission that can:

- Determine how the Deep Impact experiment modified the surface of Tempel 1 (e.g., crater size)
- Provide additional information on enigmatic layering and flow features discovered by Deep Impact

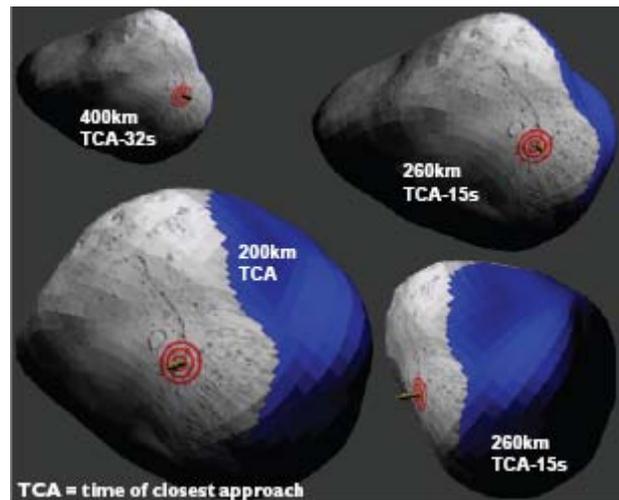
A MISSION of OPPORTUNITY TO COMPLETE THE EXPLORATION of TEMPTEL 1 WITH STARDUST



Robust Mission Profile

Following a deep space maneuver in September 2007, the spacecraft plans to execute an Earth flyby in January 2009 necessary for arrival at Tempel 1 on February 14, 2011.

What Do We Expect to See?



- = DI impact site
- = previously unmapped

Encounter Strategy

The Stardust-NExT camera will detect the nucleus approximately 60 days before encounter:

- 60 days to 1 day before encounter: Imaging refines position of comet and monitors nucleus activity
- During encounter the on-board camera images nucleus surface and jets at high resolution. Dust Counter and Dust Analyzer measure flux, size distribution and composition of dust.
- After encounter the camera continues to monitor jet and coma activity.

STARDUST-NExT: A Mission of Opportunity to Complete the Exploration of Tempel 1 with STARDUST

Instrument Payload

Camera

- Locates nucleus on approach
- Images coma and dust jets near nucleus
- Maps nucleus at high resolution

Instrument Specifications:

Mass: 9.5 kg (20.9 lb)

Power: 18 watts

Supplier: Jet Propulsion Laboratory

Comet Interstellar Dust Analyzer (CIDA)

- Determines composition of dust surrounding nucleus

Instrument Specifications:

Mass: 12.9 kg (28.4 lb)

Power: 13 watts (average)

Supplier: von Hoerner & Sulger, GmbH

Dust Flux Monitor Instrument (DFMI)

- Measures flux and mass of impacting dust

Instrument Specifications:

Mass: 1.9 kg (4.2 lb)

Power: 1.8 watts (average)

Supplier: University of Chicago

Supporting Ground-based Observations

To augment the understanding of comet Tempel 1, Stardust-NExT supports a well-planned observing campaign to monitor the comet's activity and rotation state.

Mission Timeline

Deep Space Maneuver:

September 2007

Earth Gravity Assist (EGA):

January 2009

Encounter:

February 2011

End of Mission (EOM):

October 2011

Participating Scientist and Data Analysis Programs

To infuse new talent and broader participation, Stardust-NExT supports comprehensive participation in the Scientist and Data Analysis Programs directly focused on Tempel 1 encounter.

Education and Public Outreach

The Stardust-NExT program is comprehensive and designed to bring students, teachers and the public on this new voyage of discovery for the Stardust spacecraft. Stardust-NExT brings the excitement and wonder of exploring comets into homes and classrooms through educational programs, teacher and student workshops, a web site, media events, and involvement by both professional and amateur astronomers worldwide.

Mission Management

Stardust-NExT is a low-cost, Discovery Program mission for NASA's Science Mission Directorate.

Principal Investigator:

Professor Joseph Veverka,
Cornell University, Ithaca, New York

Project Management:

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

Mission Operations:

Lockheed-Martin Space Systems Corporation
Denver, Colorado

Spacecraft Navigation:

Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA

Deep Space Network (DSN) Support:

JPL, Goldstone, CA, Canberra, Australia &
Madrid, Spain

Science Team:

A total of eighteen co-investigators from a variety of universities, industry, and government agencies within the United States and Europe are participating in the investigations.