

CHAMPOLLION: A COMET LANDER AND SAMPLE RETURN DEMONSTRATION MISSION

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The **Champollion** mission will perform the first landing of scientific instruments on the surface of a cometary nucleus, and will demonstrate technologies for collecting and returning extra-terrestrial samples. The mission will be launched in April 2003, using a solar-electric powered carrier spacecraft to take **Champollion** to a rendezvous with periodic comet Tempel 1. Flight time is 2.7 years. Following mapping of the cometary nucleus from orbit, the 76-kg **Champollion** lander will descend to the surface. At touchdown an explosive, deployable harpoon will anchor the spacecraft to the comet to permit drilling operations. The **Champollion** payload includes panoramic and near-field cameras, a combined infrared spectrometer/microscope, a gas chromatograph/mass spectrometer, a physical properties experiment, and a one-meter drill for obtaining samples at depth. Following 84 hours of surface operations, the **Champollion** lander will collect a sub-surface sample, detach itself from the anchor, take off, rendezvous with the carrier spacecraft, and transfer the sample to the carrier. The cometary sample will then either be analyzed onboard the carrier spacecraft or returned to Earth for analysis in terrestrial laboratories.

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| <p>3. Convener: Stephan Ulamec</p> | |

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