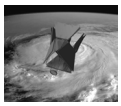
Enabling the Future

Lidar Space Vision Systems
For Next Generation On-Orbit Servicing

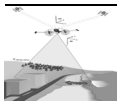
By Arkady Ulitsky, Optech Incorporated
and Dan King, MD Robotics

DLR-CSA WORKSHOP
25-26 November 2002
DLR, Colonge Area, Germany

Application Areas



- **Space and Atmospheric Division**
  - Space Operations & Atmospheric Analytic Lidar Systems



- **Terrestrial Division**
  - ALTM Surveying

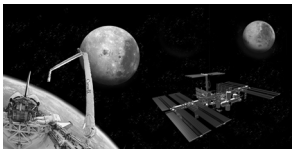
- **Marine Division**
  - Bathymetry Hydrographic Surveying

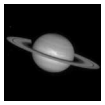
- **Imaging Division**
  - ILRIS 3-D

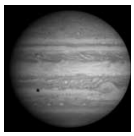
- **Industrial Products Division**
  - Measurement & Control

Space and Atmospheric Program Areas

Rendezvous & Docking

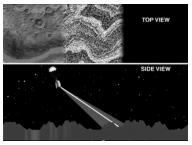




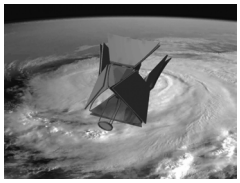


New Frontiers

Smart Landers & Rovers



Planetary Science



Strategic Partnership

Optech

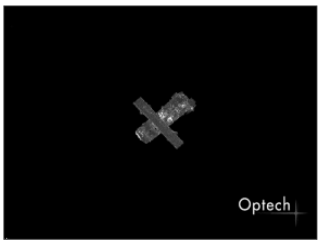
World's largest lidar corporation with 30 years lidar heritage …

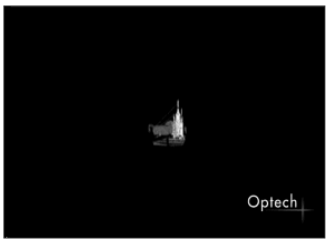
MDRobotics

… World's largest space robotics corporation with 30 years space heritage

Rendezvous & Docking (RELAVIS)

RELAVIS uses an original proprietary space vision technology for targetless space operations, utilizing surface features of spacecraft, instead of relying on retro-reflectors and visual targets

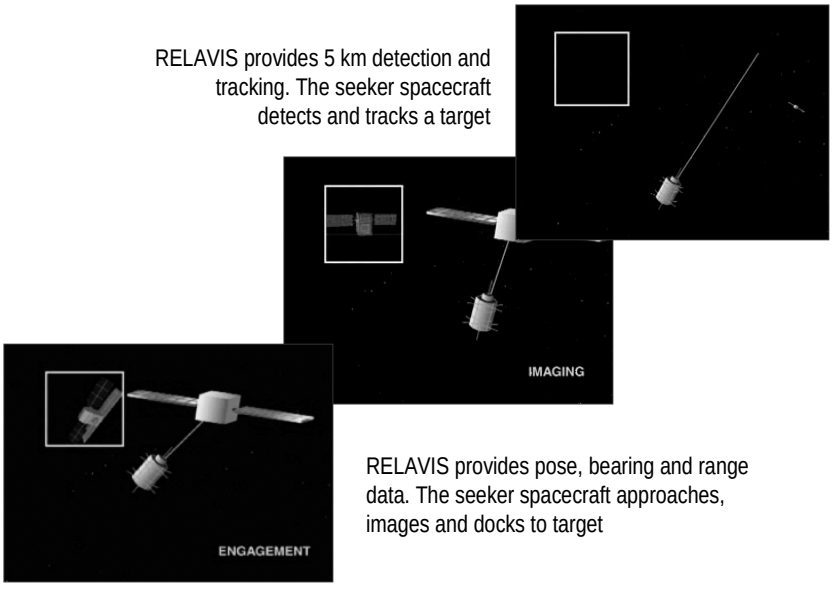




Lidar point cloud image of ENVISAT and MERCURY rocket scanned with Optech's ILRIS-3D.

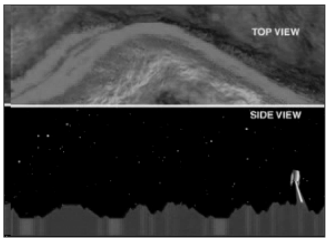
Rendezvous & Docking (RELAVIS)

RELAVIS provides 5 km detection and tracking. The seeker spacecraft detects and tracks a target



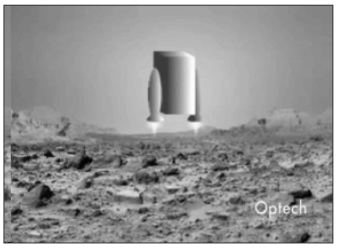
RELAVIS provides pose, bearing and range data. The seeker spacecraft approaches, images and docks to target

Autonomous Planetary Landing System



The “smart ” landing system autonomously selects and prioritizes safe landing sites illustrated in green

Guidance, navigation and control commands fed to spacecraft propulsive system to safe landing site



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