Europa Kinetic Ice Penetrator (EKIP)

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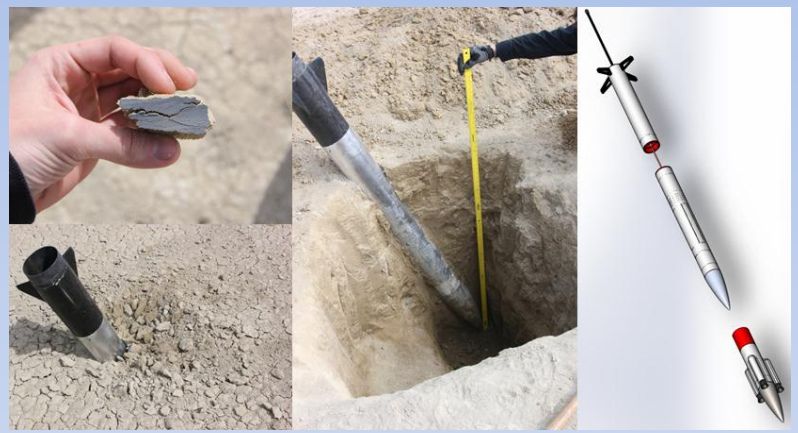
Research Objectives.

- Characterized properties of impact including depth and width of crater.
- Demonstrate that a 2nd impact in the same area experiences significantly less deceleration
- Demonstrate two-stage penetrator system with onboard electronics can survive a hypervelocity impact more easily that a single penetrator impact



Example Penetrator Systems

Approach

- RAM acceleration tests give overall characteristics of hypervelocity impact
- ANSYS simulations allow design of full scale system
- Field testing allows validation of modeling.
- Laboratory and field testing evaluate survivability and heating of onboard electronics.

Potential Impact

- Increase penetrator survivability regime to hypervelocity speeds
- Facilitate Europa Ice Penetrator mission
- Enable new spacecraft missions with penetrator technology