



Prioritized Technology: Instruments to Identify Life Processes on Ocean Worlds

Technical Goals

Detect enclosed vesicles that contain a chemical environment that differs from the macro-environment

Detect the replication of information carrying molecules

Detect the catalytic action carried out at the direction of information carrying molecules

Technical Status/ SOA

- Viking labeled release experiment
- Viking gas exchange experiment
- Viking pyrolysis release experiment

Mission Applications

- Identification of structures with microenvironment very different from the macro-environment would be a strong indicator of semipermeable membranes, probably a requirement for life.
- Identification of replicating, information carrying molecules would be a strong indicator of life.
- Identification of catalytic activity carried out at the direction of information carrying molecules would be a strong indicator of life.