

European Lunar Observatories

Discussion Points

Is there a “market” for lunar observatories

- Yes!
- Unique Applications (can only be done on the moon)
 - Low-frequency radio array
 - Large IR telescope
 - Lunar geosciences: geophysical network sciences (e.g. seismometers for mantle-core structures, geophones for crust and regolith structure, magnetometers, heat flux probes), geochemistry and mineralogy (e.g. Mößbauer, APX), regolith properties (e.g. porosity, permittivity, grain sizes), geodesy, use of rovers, etc. ..., cameras
 - CR detectors?
- Applications which would greatly benefit from a lunar mission ...
 - Small X-ray telescope for observations of solar wind charge exchange
 - Solar coronagraph
 - IR/FIR interferometer
 - IR background
 - UV Telescope
 - Neutral atoms
- Double Use / Spin off of infrastructure
 - Use communications signals for sounding of lunar ionosphere or as beacon
 - rover for technical use also applicable for science investigations
- => Need/Possibility for multidisciplinary mission

What are advantages of the moon?

- Very low Ionosphere
- Shielding from earth interference
- Large ground – spatial distribution
- Logistics:
 - Experiments will just “sit” there (cheaper operations)
 - Several missions to the same planet with large payload are preferable
 - ⇒ lower recurrent costs
 - ⇒ Bundle multiple experiments with a modular approach/container boxes (no need to build a separate volume-limited free-flyer for each small experiment)
 - ⇒ Geographical distribution

What are the funding schemes?

- Infrastructure by Europe!
- All payload by national agencies?
 - Is everything from one source better?
 - Facility or PI instruments?
- What is cheaper (if same science can be achieved from orbit and on moon)?
 - Lunar missions bundling several applications?
 - Free-flyers?

⇒needs more detailed studies

Is there an opportunity for lunar mission

- Yes
 - There is a revived global interest in exploration of the moon
 - ESA is considering a lunar lander for technology and science and is open to input.
- But: Will there be only one mission or a sustained program?
- We need a clearer road map/scenario here!

Are current scenarios sufficient?

- Number of missions:
- Payload of missions:
- Locations on the moon:
- Local Rover ranges:
- Orbiters?

Dissemination of Workshop Results

- Talks on Website
- Summary of Workshop
- Jointly signed “Statement”
- Summary of Applications (one page each)
- Proceedings?
- Papers??

What is needed, when?

- Scientific and Technical Studies
 - National agencies/ESA
 - Science Cases
- Scientific papers
- Input into Science Community:
 - National Meetings
 - ASTRONET: Astronomy Science Vision
- Input to national agencies
- Input to ESA
- Outreach!