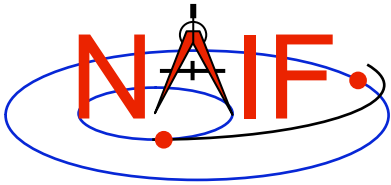


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# **Geometric Event Finding Programming Lesson for PHSRM**

**August 2011**



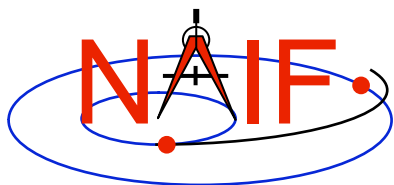
# Geometric Event Finding: Overview

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- **Problem statement:**

- Determine when the Phobos Sample Return spacecraft (PHSRM) is visible from the tracking station USSURIYSK , within the time interval  
2013 Jan 17 TDB  
2013 Jan 27 TDB
- For the spacecraft to be considered visible, the apparent spacecraft position relative to USSURIYSK must have elevation of at least 6 degrees in the USSURIYSK topocentric reference frame USSURIYSK\_TOPO.
  - » Use light time and stellar aberration corrections to compute the spacecraft position relative to USSURIYSK.
- Account for possible occultation of the spacecraft by Mars.
- Compute a SPICE window representing the visibility period.
- Display the start and stop times of each time interval in this SPICE window.



# Visibility Geometry

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