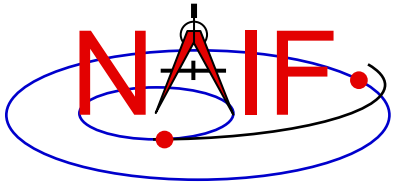


Navigation and Ancillary Information Facility

SPICE Development Plans and Possibilities

January 2017



DSK Shape Models

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- **Extension of the DSK shape model subsystem**
 - Complete the digital elevation model portion (Type 4 DSK)
 - » The tessellated plate model (Type 2), for small, irregularly shaped bodies already exists
 - Add additional functionality to the tessellated plate model portion



More WebGeocalc Development

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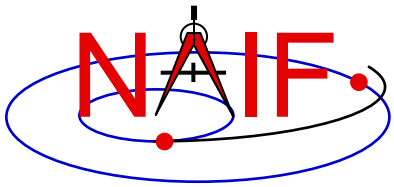
- **NAIF implemented a client-server GUI interface to a SPICE geometry engine, named WebGeocalc**
 - It's already seeing quite a lot of use around the globe
- **We are now adding more capability to it, and hope to continue further development.**



More API Interfaces

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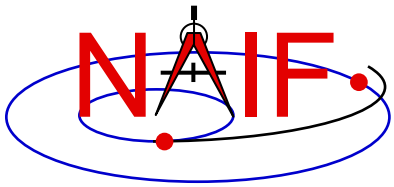
- **Complete the Java Native Interface (JNI Spice) toolkit family**
- **Python interface**
 - Several SPICE users have implemented and are offering their own, partial Python interfaces to SPICE
 - » Check here for links to two of them
 - <http://naif.jpl.nasa.gov/naif/links.html>
 - While NAIF hasn't tried them, others report these appear to be good quality products
 - Thus NAIF seems unlikely to do any of its own Python work
- **SPICE 2.0: thread-safe and object oriented Toolkit**
 - This is the major undertaking starting about January 2017
 - Probably will be implemented in C++



Some Other Possibilities?

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- **More high-level computations, such as instrument footprint coverage**
- **More “geometry finder” computations**
- **Complete the star catalog subsystem started long ago**
- **Additional target models: rings, gravity, atmosphere, magnetosphere, ...**
- **Develop a more flexible and extensible instrument modeling mechanism**



What do **You** Suggest?

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- **NAIF solicits suggestions from the user community.**
 - **Caution: we're a small team and have a large backlog, so we can't promise any particular action.**
- **We're interested in programmatic ideas as well as technical ones.**
 - **Should NAIF promote use of SPICE beyond NASA's planetary science program?**
 - **What amount of cooperation and interoperability with foreign partners is appropriate and achievable?**