

Possible Employment Opportunity with NAIF
September, 2015

JPL's Navigation and Ancillary Information Facility (NAIF) is contemplating hiring a new, permanent staff member. This is a bit of "blue sky" thinking at this point, as we do not currently have a commitment for the permanent funds needed. Nevertheless, one source has suggested that the needed funds might be obtainable, so NAIF should investigate finding a good candidate; thus this unofficial search is being made.

We are looking for someone who can fill multiple, quite different roles within NAIF.

- **Development:** conceive, design, implement, document and provide test code for "small," single purpose APIs as well as for "large" subsystem API families.
- **Mission operations:** set up, operate and problem solve SPICE kernel production for NASA flight projects that hire NAIF to fill the SPICE operations role.
- **Archive production:** produce and validate high quality SPICE archives for delivery to the Planetary Data System, using the PDS4 archive standards. (This is really just one component of the Mission operations role.)
- **User support:** having obtained a broad understanding of the full SPICE domain, provide consultation and problem solving for SPICE users, and participate in the development of training materials and the teaching SPICE classes.

A person with an engineering or applied math background, accompanied by a proven, strong programming aptitude, is most likely to best meet our needs. Specialists in areas of computer science or systems engineering are not so likely to have the requisite skills.

As indicated above, NAIF is far more than a coding group. Nevertheless, the production of very high quality code is an important part of our work. We currently write distributable code in Fortran 77, C, IDL, Matlab and Java, and are likely to expand into Python and C++. We also use Perl and shell scripting in internal processes, and are expanding into some use of Google Web Toolkit and a variety of other packages. A candidate need not be an expert in all of these, but must have the aptitude and willingness to learn these and other languages.

In NAIF we have a rule-of-thumb that one must spend equal amounts of time on writing a piece of code, testing that code (including writing test code), and documenting the code. We understand that testing and documenting code may not be totally blissful, but these are firm requirements.

NAIF has developed rules for coding style (including extensive internal documentation), code testing methodology, and the writing of a variety of documents describing file formats and content, code design and code use. All team members are required to abide

by these rules since they lead to a more consistent product—thus easier for our users to understand and easier for us to maintain.

NAIF suggests anyone contemplating joining the team take a close look at examples of the tangible NAIF products: the NAIF website, <http://naif.jpl.nasa.gov/naif/index.html>, samples of source code with included documentation, the variety of documents found in each Toolkit or here <http://naif.jpl.nasa.gov/naif/documentation.html>, and a typical mission archive such as this one for Mars Reconnaissance Orbiter http://naif.jpl.nasa.gov/pub/naif/pds/data/mro-m-spice-6-v1.0/mrosp_1000/. Ask yourself if preparing these kinds of products would be amenable to you.

The NAIF organization is quite small—currently four members—but must act as a tight-knit team. Any applicant would need to work well in such a cooperative environment. NAIF staff also have many external interactions with engineers and scientists throughout the U.S. and around the globe. One needs excellent interpersonal skills to carry out the NAIF business.

Publishing and/or presenting the results of one's work is a common part of many space science endeavors. However, within NAIF there is very little of this. We mostly consider our software, its allied documentation, the SPICE tutorials and the occasional SPICE training classes to be our published works. (On occasion we present a SPICE status poster at a science conference, mostly as an informational mechanism.)

It usually takes substantial time to train a new NAIF team member... typically a year or more. (The learning process really goes on much longer than that.) NASA, the NAIF group, and the SPICE user community wish to receive good value from an investment in such training. Consequently, we are looking for someone with considerable SPICE experience who can confidently decide that staying with NAIF for the long run is consistent with her/his career goals.

Even though SPICE components are not restricted under U.S. export regulations, it would be very difficult to employ a foreign national. We would be looking for a U.S. citizen or resident alien (holder of a "green card").

Anyone interested in being considered for a job with NAIF as described above, should such an opportunity become a reality, could send a note of interest to NAIF Manager Charles Acton at [charles.acton \(at\) jpl.nasa.gov](mailto:charles.acton@jpl.nasa.gov).

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