



Massachusetts Institute of Technology Center for Space Research

Coral Reef Mission

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Monthly Progress Report January 2002

We have set up a "Coral Reef Mission" web site for the engineering efforts; no big deal in that.

<http://snebulos.mit.edu/projects/crm/>

What you may find somewhat more interesting is the Configuration Data Base which is referenced here. This is our standard documentation system for tracking everything from flight hardware to engineering design memos. What you see here is an outline of what will become a several thousand line listing, from individual resistors to operating manuals. Clearly, we don't need the hardware aspects at the moment; they are only provided to give example. What we do need, however, is a structure within which to organize our thoughts and keep track of the top level paper we are generating.

The one small example I've "released" into the system is document 43-01001, Mission Organization Chart (which you have seen before). The actual source document (in PowerPoint) is in the e-file cabinet available by walking the directory tree from the top web page -- plus all previous revisions -- and, by clicking on the document number in the database, a PDF copy of the latest version will pop up on your screen. Yes it seems a bit of a toy at this stage, but when the number of drawings and documents get well into the hundreds, the system starts to pay for itself. Besides, all this web magic is done automatically as soon as the Configuration Manager (Deborah Gage, when her back feels better) enters document into the database.

The (only) other reportable item of progress we made this month was to get Brian Klatt (Center for Space Research Reliability and Quality Assurance Manager) started on an effort to write an R&QA plan for this Mission. Why you ask? For several reasons. First, because we need to provide explicit guidance for our sub-contractors, e.g.: space craft vendor, to tell them what our expectations are in both design and component reliability. Second, because we need to communicate to our prospective funding organizations exactly how we are going to spend their money, what safeguards we are establishing to make sure the investment is wise, and why we are managing the program the way we are.

Let me give an example of the later point. Everyone in the space business knows that you subject sub-components -- momentum wheels or instruments -- to environmental tests before you integrate them onto a spacecraft for one really big environmental test. It isn't even a subject for discussion. Yet our funding sources wouldn't have a clue that such things were done, much less why it is done that way (it has to do with minimizing overall program risk of large financial and schedule problems late in the game by spending a little extra money and schedule early). We need words on a page explaining these things both to give our funders warm, fuzzy feelings as well as to establish in our own minds exactly how much risk mitigation we want to apply within the vast continuum of possibilities.

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