

# Re: Opening the High Frontier of Space

---

*Source:* <http://sci.tech-archive.net/Archive/sci.space.policy/2008-02/msg00749.html>

---

- *From:* Ian Parker <[ianparker2@xxxxxxxx](mailto:ianparker2@xxxxxxxx)>
  - *Date:* Tue, 26 Feb 2008 03:56:51 -0800 (PST)
- 

On 26 Feb, 06:22, Fred J. McCall <[fmcc...@xxxxxxxxxxxxxxxx](mailto:fmcc...@xxxxxxxxxxxxxxxx)> wrote:

Ian Parker <[ianpark...@xxxxxxxx](mailto:ianpark...@xxxxxxxx)> wrote:

:On 25 Feb, 14:49, Fred J. McCall <[fmcc...@xxxxxxxxxxxxxxxx](mailto:fmcc...@xxxxxxxxxxxxxxxx)> wrote:

:>

:> Let's see your business case.

:>

:

:A business case can only refer to 5 years or less in the future.

:

False. Please provide an authoritative cite for this contention.

Weren't you the one who was pillorying others because they expressed opinions and didn't produce a business case?

Just an A.S.S., I tell you...

--

"Ordinarily he is insane. But he has lucid moments when he is only stupid."

— Heinrich Heine

OK a 2STO would be built within 5 years and comes well within the criteria. I would expect the mining of Ceres to be done by private enterprise. All public funding to be shut off after the 5 year deadline.

We can look at a 2STO and get a design now. A "low cost" 2STO could be built in 5 years if it is buildable.

Let's look at Ceres. We need to know how much platinum there is and what technology would be used to extract it. With present technology involving humans would cost (probably) some £200 billion. This is why we would need to devise automation. With automation the entry into the galleries could be quite small (10cm or so tubes). I feel it would be necessary to do an exploratory drilling into the core. This would be

## Re: Opening the High Frontier of Space

done by a nuclear powered mole, similar to the sort of moles envisaged for Europa, but able to go through rock as well as ice.

Initially geophones should be landed on Ceres, this will give us an idea of the structure and a mole could be designed after that. I would reckon on a cost broadly in line with what is generally accepted as the cost of an unmanned probe. Probably £2 billion for the initial exploration. There would in fact be some commonality with Europa. BTW – life produces optically active compounds. If our main objective is to find life on Europa, I feel this might be done by measuring the change in polarization of a laser, without the need to drill.

The other side of the equation is how long before it is needed? We have reached "peak oil" and so we need to think in terms of electric vehicles. When – Well futurologists talk about the "S" curve. This looks like an integral sign and describes the take up of a new technology. At present installed solar power is increasing at 50% per year. This is an approximate doubling in just under 2 years. Solar power in fact (at the moment) gives a very similar growth figure to Moore's law in computers. So in answer to the question "When will we need it", the answer comes out at 15–20 years if we assume a basic Moore growth. This may be incorrect but I feel it is the most realistic assumption. Of course politics may influence the decisions taken.

How much will it cost then? This depends on the level of automation. On the assumption that some sort of nanotech will spot grains of platinum and extract them, and that automation will give us the ability to use the iron/aluminium on Ceres, if we assume that the only thing that needs to be transported from Earth is chips, the total cost could be confined to 10 billion or so.

This makes it a viable proposition. I am assuming major advances in nanotechnology and some advances in AI. I am not assuming any dramatic advance in rocketry. Of course thermonuclear propulsion would decisively affect the manned/unmanned balance

– Ian Parker