Re: Man−Rating Atlas V

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Jonathan Goff wrote:

> Will,
>
> > On the other hand, NASA was probably correct in believing that, all other things being equal, the fewer launches the better.
>
> But alas, all other things *aren't* equal. In fact they are unequal to the
> tune of $20B or more. That buys a lot of experience with on−orbit assembly,
> propellant transfer, and a boatload of commercial launches.

True. But the argument also goes the other way.

There are costs to going to the moon in only two launches. Clearly that solution requires a rather large vehicle which does not yet exist. And maintaining that vehicle has some ongoing fixed costs as well.

On the other side, there are costs to going to the moon in pieces small enough to fit on existing launchers.

Let x be the probability that an attempt at automated rendezvous and docking will fail.

Let y be the probabillity that so many payloads of a multipayload mission will fail that propellant boiloff or other factors will require restarting the mission and discarding payloads launched to date.

Let z be the probability that a rendezvous and docking will succeed if humans are nearby.

If x and y and z are clearly identified, then it should be fairly easy to decide how many launches are optimum.

Are they?

Will McLean

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