

Re: Mining the Moons of Mars

Source: <http://sci.tech--archive.net/Archive/sci.space.policy/2009-01/msg00473.html>

- *From:* willie.mookie@xxxxxxxxxx
 - *Date:* Fri, 16 Jan 2009 15:09:29 -0800 (PST)
-

On Jan 12, 7:02 pm, BradGuth <bradg...@xxxxxxxxxx> wrote:

On Jan 11, 12:53 pm, willie.moo...@xxxxxxxxxx wrote:

On Jan 8, 8:31 am, BradGuth <bradg...@xxxxxxxxxx> wrote:

And yet our physically dark as coal Selene/moon is forever
taboo/
nondisclosure rated, with more excluded evidence than our
mutually
perpetrated cold-war, JFK and TWA flight 800 combined.

We can't even establish a platform of science instruments
within
Selene L1. Is that pathetic, or what?

~ BG

Brad,

Every single word you have uttered is absolutely and abjectly wrong at
every level of meaning!!

Please consider the following facts;

THE MOON'S SURFACE IS NO DARKER THAN THE EARTH'S SURFACE

That at 8% average albedo, the moon's surface is no darker than wet soil, bodies of water, oceans, or forests of Earth – which are also 8%.

<http://en.wikipedia.org/wiki/File:Albedo-e hg.svg>

If you've ever been in a boat on a lake on a sunny day, or sitting in a grassy field, on a sunny day, or on a beach on a sunny day – you'd notice that despite only 8% of the sunlight reflecting back at you – its pretty bright!! You'd also notice this if you'd actually get out of the basement and look up at the moon on a dark cloudless night – you'd see the moon shine like a beacon – despite its 8% albedo.

The only reason the Earth's albedo is higher than 8% is the presence of a smoggy cloudy dusty atmosphere and ice fields near the poles.

If you've ever ridden in a car, or ridden a car around town on a sunny day you'd realize too that the moon is brighter than asphalt (4% instead of the moon's 8%)

<http://en.wikipedia.org/wiki/Albedo>

and if you've ever driven a car around town in the summer, you'd know its damned bright!! Bright enough to wear shades.

THERE IS NOTHING TABOO ABOUT OUR TRIP TO THE MOON

Re: Mining the Moons of Mars

Significant data exists discussing the history of these historically important voyages.

<http://history.nasa.gov/alsj/>

you can even obtain samples of lunar material to experiment with.

<http://www-curator.jsc.nasa.gov/lunar/index.cfm>

Point is, the moon's surface is no darker than Earth's surface – its the atmosphere and snow that make it a brighter astronomical object.

THE COLD WAR IS NOT A SECRET

The Library of Congress has detailed historical documents available to anyone who requests information;

<http://www.loc.gov/loc/lcib/0010/coldwar.html>

any of the minor details that remain secret to this day may be requested via a FOIA request;

http://www.usdoj.gov/oip/how_to.htm

THE ASSASINATION OF JFK HAS NOTHING WHATEVER TO DO WITH ANY OF THE OTHER SUBJECTS YOU MENTIONED – AND IT APPEARS THAT THE MYSTERY OF THE ASSASINATION HAS FINALLY COME TO LIGHT!

Re: Mining the Moons of Mars

<http://www.legacyofsecrecy.com/>

It has nothing at all to do with the moon.

TWA FLIGHT 800 EXPLOSION WAS DUE TO A FAULTY FUEL TANK
AND HAS NO
CONNECTION WITH ANY OTHER THING MENTIONED IN YOUR
RANT

<http://www.nts.gov/Publictn/2000/AAR0003.pdf>

As of 2006 there were 18 fuel safety directives issued for B737s and 9
fuel safety directives issued for A320s.

There have been four fuel tank fires involving Boeing aircraft – one
including the TWA flight – so its not unique;

In 1990 when a Boeing 737–300 operated by Philippine Airlines exploded
on the ground while taxiing

[http://aviation-safety.net/database/record.php?id=19900511-1\)=en](http://aviation-safety.net/database/record.php?id=19900511-1)=en)

In 1996, was the tragic incident when a Boeing 747–131 operated by
Trans World Airlines exploded in midair some 12 mins after take off
from JFK

<http://www.nts.gov/Events/twa800/>

[http://aviation-safety.net/database/record.php?id=19960717-0\)=en](http://aviation-safety.net/database/record.php?id=19960717-0)=en)

Re: Mining the Moons of Mars

In 2001, when a Boeing 737-400 of Thai Airways exploded, half an hour before scheduled take off.

In 2006, when the left wing fuel tank of a Boeing 727 of Transmile Air Service exploded in Bangalore while being towed on ground.

<http://www.nts.gov/Pressrel/2006/060712a.htm>

The Nation Transportation Safety Board says that available evidence from these incidents suggests that the cause is the ignition of fuel-air mixture in the center wing fuel tank.

The Caltech Explosion Dynamics Laboratory performed a series of experiments which highlighted the flammability of fuel/air mixtures of jet fuel

<http://www.galcit.caltech.edu/EDL/projects/JetA/background.html>

If you would actually trouble yourself to learn a few facts about these matters you'd actually begin to heal whatever seems to cause your serious disconnect with reality.

Good luck Sponge Bob!

On average (meaning AVERAGE), full moonshine is worth 7.1% (that's upon 'average' somewhat darker than coal), terribly sorry about that.

http://en.wikipedia.org/wiki/File:Albedo-e_hg.svg
<http://www.universetoday.com/guide-to-space/the-moon/moon-albedo/>

The albedo of the moon – when fully illuminated by the sun – is 12% sponge Bob! haha – the 7.1% is an average based on partial illumination over the course of a month.

Details count – and as per usual – YOU ARE UNAWARE OF THEM!

Re: Mining the Moons of Mars

Re: Mining the Moons of Mars

Coal reflects anywhere from 4% to 9% of incident light – depending on weathering and carbon content. On average coal is 1/2 to 1/3 as bright as the moon under full illumination. On average the surface of the moon is as bright as bodies of water, soil, forests and meadows of Earth! Earth's AVERAGE albedo is higher than the moon's for one reason and one reason only– the Earth's atmosphere and the hydrological cycle. Ice fields and water clouds are nearly perfectly reflective – which increases average albedo. Yet we humans rarely operate above clouds and on ice floes. Walking on the moon in the day is pretty much the same as walking in a meadow on a sunny day – except the moon is sunnier than any place on Earth by about 50%!! So, your characterization of the moon as a dark place is ridiculous – and your 'analysis' of the lunar photos on that basis is madness.

btw, the average albedo of Earth has white clouds, snow and ice, plus a UV reactive atmosphere, whereas our Selene/moon does not. Go figure.

That's right! I pointed that out – but you totally miss the point. People don't generally live above the clouds or on ice floes or unbroken snowfields. People live in houses surrounded by yards and asphalt or dirt streets or float in houseboats on bodies of water – which all have the same or less reflectivity under full illumination than the surface of the moon.

btw once again, why not instead go after mining our second captured moon Cruithne 3753, at not 1% the cost of doing a Mars moon?

Where do you get your figures? Going to Cruithne is about the same level of effort as going to Mars. Which is more like 100% of going to mars – not 1% of going to mars

Also, why do you talk as if someone's ignoring Cruithne? Obviously we're not. If anything, YOU are unaware again of the level of effort – and the details that would allow you to make an accurate assessment.

Clearly Cruithne has an orbital period around the SUN of 1 year – it doesn't orbit Earth – in fact its bean shaped orbit from Earth's viewpoint – is off to the side, not centered on Earth at all!

http://en.wikipedia.org/wiki/3753_Cruithne

And it never gets closer than 12 million km and it won't do that until 2292AD –

Re: Mining the Moons of Mars

The question any off-world mining company must ask is– what's the total DELTA VEE needed to get the materials from this asteroid (or any other celestial body) to Earth orbit? and what is the cost of establishing the technology to do so? that will give you a mass flow rate for a given power level, and the cost per unit mass to get stuff back to Earth. Orbital periods will give you times. Mars takes about a year. The moon half a week. Cruithne – 6 months to 18 months. The asteroid belt – 3 years.

Generally speaking if you're within 15,000 km of Earth's surface – you're within 1/10th second teleoperation response time – which means real-time control of robots is feasible – which means you don't have to have a large population of people in place on your asteroid. Cruithne never gets less than 12.5 million km away – which is about 1,000x too far for real time operation.

I have proposed for 20 years now that small richly endowed bodies of the solar system be captured and brought into sun synch polar orbits above Earth, and then solar powered tele-operated factories be deployed on them to produce things that are then de-orbited directly to users on Earth using GPS guidance and solar powered rail guns – and then MEMs based braking and landing rockets for final touch-down.

Hyperbolic excess delta vee for a minimum energy transfer range from 3 km/sec to 8 km/sec – for Cruithne – which is far larger than the moon and mars. Transfer times range from 6 months to 18 months – which again is far larger than the moon, and larger at times than some mars transfers – which can occur in as little as 90 days.

http://ccar.colorado.edu/asen5050/projects/projects_2003/raine/c3.html

So, while the surface gravity of the moon and Mars add to delta vee – its clear we cannot do better on Cruithne – though certainly we can do Cruithne with the same tech we can do Mars.

A solar powered rail gun on Cruithne can send materials to Earth orbit – to be processed by orbiting factories – and finished goods can supply people on Earth – as well as industry on orbit. The same may be said of any asteroid in the asteroid belt – any Earth crossing asteroid – and the surfaces of the moon and mars.

One thing we can do with ANY asteroid – is move it to Earth orbit for efficient processing with remotely controlled solar powered factories.

At 130 billion tonnes – Cruithne may be moved to orbit around Earth by imparting 3 km/sec to it at minimum energy transfer.

Using shaped atomic charges – portions of the asteroid may be ejected at 20 km/sec. To impart 3 km/sec to the asteroid using this approach – to bring it into a safe orbit around Earth – requires;

Re: Mining the Moons of Mars

$$u = 1 - 1/\exp(3/20) = 13.93\%$$

that 18.1 billion tonnes of the asteroid be energized by atomic explosions. With 30% of the atomic blasts showing up in the ejecta – and 70% showing up in blast effects – we need 3.62×10^{21} joules of energy. A kg of Uranium has 8.2×10^{13} joules. Used to initiate a fusion reaction in deuterium– this can be increased to 3.8×10^{14} joules per kg of deuterium. Since deuterium is far more abundant – and cleaner – this is method of choice.

So dividing $3.62 \times 10^{21} / 3.8 \times 10^{14} = 9,530$ metric tons of deuterium.

<http://adsabs.harvard.edu/abs/2003PhRvB..68f4204D>

At 140 kg per cubic meter this requires a ten thousand tanks each. If spherical they would each be 2.35 meters in diameter and massing less than 1 metric ton. Each is equipped with a HEU initiator – made from surplus weapons systems – modified for this purpose. There is also a 5 tonne iron plate about 10 meters in diameter, and the hydrogen tank is actually shaped as well around the plate – to produce a shaped charge – only a few meters thick. The surface of each charge is covered with MEMs based rocket array providing a propulsive skin;

<http://www.me.berkeley.edu/mrc1/rockets.html>

think of an HDTV covered with rockets – instead of pixels – and instead of 3 colors – there are three arrays – each pointing in a different direction orthogonal to the other two – whose resultant of the triad of engines in each thrustel – points normal to the propulsive surface.

The same super-heavy RLV that puts up 21 km diameter inflatable powersats also places 100 charges into orbit toward this (or any other) asteroid. Each charge provides 1/10,000th of the total delta vee for the mission. Each launcher provides 1% of the delta vee. 100 launches over the course of 6 months allows 100 satellites – each with 100 charges – to arrive above Cruithne – the mission is then carried out over the course of a 10 hours – with one blast occurring every 3 seconds – and the next blast precisely positioned and oriented – on the basis of the delta vee imparted by the preceding charges.

~ BG

As per usual – you are misinformed or incompletely informed and have made erroneous conclusions based on that misinformation.

.