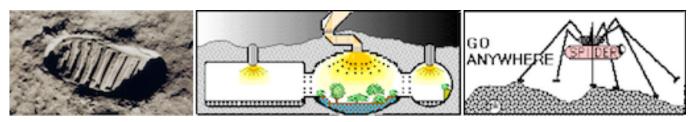
# "Towards an Earth-Moon Economy - Developing Off-Planet Resources" Moon Miners' Manifesto & The Moon Society Journal www.MMM-MoonMinersManifesto.com

# MMM'S 28th Anniversary Issue

ABOVE: Space tourism began in Earth orbit and will expand outwards from there to lunar flybys and land excursions **Feature Articles** 

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# **About Moon Miners' Manifesto –** "The Moon - it's not Earth, but it's <u>Earth's!</u>"

- MMM's VISION: "expanding the human economy through off-planet resources"; early heavy reliance on Lunar materials; early use of Mars system and asteroid resources; and permanent settlements supporting this economy.
- MMM's MISSION: to encourage "spin-up" entrepreneurial development of the novel technologies needed and promote the economic-environmental rationale of space and lunar settlement.
- Moon Miners' Manifesto CLASSICS: The non-time-sensitive articles and editorials of MMM's first twenty years plus have been re-edited, reillustrated, and republished in 23 PDF format volumes, for free downloading from this location: http://www.MoonSociety.org/publications/mmm\_classics/
- MMM THEME Issues: 14 collections of articles according to themes: ..../publications/mmm\_themes/
- MMM Glossary: new terms, old terms/new meanings: www.moonsociety.org/publications/m3glossary.html
- MMM retains its editorial independence and serves many groups, each with its own philosophy, agenda, and programs. Sharing MMM may suggest overall satisfaction with themes and treatment, requires no other litmus test.

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- For additional space news and near-term developments, there is a daily RSS feed space news section on <a href="http://www.moonsociety.org">http://www.moonsociety.org</a>. You can also read Ad Astra magazine mailed to National Space Society members. Milwaukee Lunar Reclamation Society is an independently incorporated nonprofit membership organization engaged in public outreach, freely associated with the National Space Society, insofar as LRS goals include those in NSS vision statement. MLRS serves as the Milwaukee chapter of both The National Space Society and The Moon Society: <a href="http://www.moonsociety.org/chapters/milwaukee/">http://www.moonsociety.org/chapters/milwaukee/</a>
- The National Space Society is a grassroots pro-space membership organization, with 10,000 members and 50 chapters, dedicated to the creation of a spacefaring civilization.

National Space Society 1155 15th Street NW, Suite 500 Washington, DC 20005 (202) 429–1600 – www.NSS.org

- The Moon Society seeks to overcome the business, financial, and technological challenges to the establishment of a permanent, self-sustaining human presence on the Moon." Contact info p. 9.
- NSS chapters and Other Societies with a compatible focus are welcome to join the MMM family. For special chapter/group rates, write the Editor, or call (414)–342–0705.
- Publication Deadline: Final draft is prepared ASAP after the 20th of each month. Articles needing to be keyed in or edited are due on the 15th, Sooner is better! No compensation is paid.
- Submissions by email to <a href="KokhMMM@aol.com">KokhMMM@aol.com</a> Email message body text or MS Word, Open Office, Text files, and pdf file attachments or mailed CDs, DVDs, or typed hard copy [short pieces only, less than 1,000 words] to:

  Moon Miners' Manifesto, c/o Peter Kokh, 1630 N. 32nd Street, Milwaukee, WI 53208-2040

# In Focus Tourism, not Industry, may "Kickstart" Lunar Settlement

By Peter Kokh

On Earth, there are tourists who pay for the privilege of working, on "paleontological digs" or "architectural digs," for two examples. This is something we may see much of on the Moon.

Some tourists will pay to explore, to help build, to help prospect, and more. Tourism will be a cornerstone of a young lunar economy.

At the same time, the first settlers, appreciating the boost to their infant economy contributed by tourists, will want to "kill two birds with one stone," so to speak, by developing arts and crafts based on available lunar materials to adorn their living quarters, thus making them more interesting to tourists, as well as to produce souvenir keepsakes for tourists to bring back home.

They will also want to "landscape" and otherwise embellish their settlement exteriors, again killing two birds with one stone: attracting tourist dollars, and making their settlement(s) more enjoyable to live in. **Tourism is not something that will come later.** It will be an integral part of the settlement process. – PK . **Editor** 

**Note:** Through the years (28 now) we have written much about the role of tourism in opening the Moon. You can find it all in the Tourism theme issue at the address just below

#### MMM THEME ISSUE: TOURISM (Index) - Tourism will affect everything!

http://www.moonsociety.org/publications/mmm themes/mmmt Tourism.pdf

#### **Stages of Lunar Tourism**

MMM #21 Lunar Overflight Tours

MMM #48 Lowering the Threshold for Lunar Occupancy:

Hostels, an alternate concept for both first beachheads and secondary outposts

MMM #49 Hostels paper continued

MMM #69 Tourist Earnings

MMM #135 First Moon Tours: The Farside Loop

MMM #244 Could Paying Working Tourists Open the Moon Faster, for Less?

MMM #260 Telepresence Tours of the Moon? How Soon?

#### **Lunar Tourism Private Enterprise Opportunities**

MMM #48 Lowering the Threshold for Lunar Occupancy:

"Hostels," an alternate concept for both first beachheads and secondary outposts

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MMM #161 Tourist Clusters on the Moon

MMM #244 Could Paying Working Tourists Open the Moon Faster, for Less?

#### What Tourists Will Come to See and Experience on the Moon

MMM #2 Moon Garden

MMM #3 Moon Mall; Moon Music

MMM #5 M is for Middoors; Lunar Architecture; M is for Matchport

MMM #7 M is for Month, or Sunth. for Meridian; for Metonic Period; Moon Calendar

MMM #8 Animal Life; Parkway

MMM #9 Moon Sports

MMM #13 Apparel

MMM #15 Rural Luna; Threads

MMM #16 Jewelry

MMM #20 An Amateur Lunar Telescope Design

MMM #43 "Dayspan"; "Nightspan"; "Sunth"

MMM #47 ABC TV Movie PLYMOUTH; Native Born; Funerals Befitting Lunar Pioneers

MMM #53 Fireside

MMM #55 Moon Roofs; Skyscrapers on the Moon?

MMM #56 Harbor & Town

MMM #69 Seven Wonders of the Moon

MMM #81 Lunar Surrey; Go-anywhere Spider Vehicle; Lunar Camping

MMM #87 The Brass Spittoon

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MMM #94 Primitive Roots of Lunan Culture; Making do without the Outdoors; Beneficent Desolation:

The lack of a global biosphere has a silver lining

MMM #95 A Tale of 2 Moons: Earth-facing and Earth-oblivious:

A Green Security Blanket Against the Overwhelming Barrenness of the Moonscape

MMM #97 The Quest for Variety; The Small Market Syndrome

MMM #102 Footsteps on the Moon and Other Leavings; The Lunar City Museum 2097 Visitors Guide;

Archive Luna: The Grand Archives of Earth and Humanity

MMM #105 Burial off-planet

MMM #107 Earth Color Medley Calendar in the Nearside Sky

MMM #105 Burial off-planet MMM

MMM #138 Regolith Beach: A Lunar Golf Course

MMM #161 Tourist Clusters on the Moon

MMM #164 Eclipses: The Lunar Experience

MMM #172 Lavatube Blacklight Fantasy Excursions

MMM #175 Creating "Nature Walks" on the Moon

MMM #225 "Skinsuit" Accessories May Open Great Lunar Outdoors

MMM #246 Most Popular Souvenir from the Moon?; How to go for a walk on the Moon and not get lost

MMM #260 Telepresence Tours of the Moon? How Soon? ##

#### Tourists could well lay the Foundations for Settlement

By Peter Kokh

IFFY FIRST STEP 1) The Energiya-Space Adventures plan.



Russia's Energiya Space Company and U.S.-based space tourism firm Space Adventures expect to ferry two tourists "around" the Moon and Back in 2017, and have already found two paying tourists. But the Russian space agency Roscosmos wants nothing to do with this plan. Yet history is made by the bold, not by the timid. http://www.themoscowtimes.com/business/article/roscosmos-disavows-plan-to-send-space-tourists-to-moon/502381.html

HUMBLE START: 2) Space-X would supply the rocket and Golden Spike the 2-person lunar lander, to give first Moon tourists more than a looping view from above, but a "bootprints on the ground" experience



http://moonandback.com/wp-content/uploads/2013/05/Golden-Spike-Pumpkin-Illustration1.jpg

#### What IS needed to make Lunar Tourism real?

1. An efficient Transportation system: Every part of the rocket from Earth, from first stage through the landing module, must be recoverable and reusable., except, of course, the tourist return capsule

Every piece of equipment landing on the Moon and not returning orbit and/or to Earth bust be designed "transformer style" if you will, to serve other purposes on the Moon's surface, either as is, or through planned modifications – even as usable scrap metal as a last resort. We need to scuttle the "everything but the warhead is expendable" mindset that has stuck with us since Peenemünde (where von Braun built rockets) – everything that arrives on the Moon must serves two uses, getting there, and usefulness to the settlement down to every last element needed to build the starter outpost and auxiliary features. This will keep ultimate costs down.

- 2. Crews that takes tourists to and from anywhere in space could be volunteers who paid for their training
- 3. Part of "The Tourist Experience" should be to help lay foundations for those who follow

The idea of working tourists is not new. Individuals pay for the privilege of "helping" on archeological and paleontological "digs." Individuals pay for the privilege of hoisting the sails and other chores on "Windjammer cruises." Tourists willing to work might pay less, and allowed to return to Earth with more "earned souvenirs."

4. Tourists might also have the privilege, should they be willing, to "re-up" i.e. to stay behind, to help prepare things for the tourist crew to follow. Every person who stays behind to work, brings down the cost of "labor on location" and advances the day when a first outpost becomes a permanent settlement.

#### From Cautious and Hyper-expensive "Pay to Build" beginnings to Settlement

Early tourists, especially those creatively gifted, will create things to see, do, and take home for themselves and for those that follow, but also to adorn and decorate a growing outpost. Each new group of tourists will continue this "tradition." Yes, this is not the way tourism works here on Earth. But the precedents do exist as we have pointed out above. ##

#### The Role of Tourism in Fostering a Unique Settlement Culture

By Peter Kokh

#### Where the first tourists will land deserves Careful Forethought and Planning

- Sites pre-selected for "settlement possibilities" It would be very useful and meaningful to the tourists themselves if the place where they land and set foot is a site pre-selected for "settlement possibilities" a place where both local resources and location are favorable for an outpost to evolve into a permanent settlement. Tourists could help in minor ways that would hasten the day when pioneers could come to stay.
- Mare-Highland sites along the East and West limbs, where Earth hangs above the horizon half the time, and the Milky Way dominates the skies the rest of the time, will have more to offer tourists, and so should have real growth potential, especially if they had access to both highland and mare regolith. More below.

#### How tourists and settlers together may make a winning combination

As new accommodations are built, some tourists will elect to stay behind, at least temporarily, growing the work force, increasing the settlement output, making long-term prospects brighter.

Undoubtedly, some of the hardier and more adventurous tourists will prefer to be on an exploratory mission visiting virgin areas, rather than visiting existing settlements. Some tourists will pay to explore, if being paid to explore is not an option. The Moon will have a lot of unvisited territory for a long time to come. What better memento to bring home than having been among the first to visit unexplored country.

Paying to explore is not something new. People pay to join paleontological and archeological expeditions.

#### The tourist-settler feedback cycle will speed the flowering of lunar culture

- Tourists bring badly needed and/or much desired "goodies from Earth" including tools and "items to remember Earth by." In doing so, they help grow the local economy.
- Tourists take home distinctively lunan items "made on Luna." This spurs on settlers to use their talents to create items, not only for tourists to take home, but with which to adorn their homes, making them more distinctively lunan, thus increasing the attraction for tourists, who come to see The Moon, and distinctively Lunar Settlements, not full of mementoes from Earth.
- Thus tourism spurs the development of distinctively lunar culture, not only in arts and crafts, but in every other way, from cuisine to sports, to music, to clothing because of the elements and resources available on the Moon are greater in some areas than others tourists will favor locations where settlement culture offers the most variety and richness as well as superior scenery.
- Thus those settlements in areas with a lot to see varied scenery, distinctive culture, even the heavens will thrive at the expense of settlements that offer nothing special for tourists to see.

#### What tourists from Earth will want to take home

- Would there be a weight allowance? If you weighed less you could bring more souvenirs back home to Earth?
- Cottage Industries: Arts & crafts: food specialties, clothing, furnishings, jewelry, products made of recyclables, etc. in short, the fruits of a developing "cottage industry" culture.
- Distinctive arts and crafts: small carved and cast basalt items, paintings made with lunar ingredients
- Clothing made on Luna traded for clothing worn by tourists on the way to the Moon
- Food specialty recipes: food made and canned on the Moon
- Recordings of music with made-on-luna instruments, taking home some of those instruments
- Experiences: not just sight-seeing, but spending time with a settler family, engaging in lunar sports, helping explore new frontiers (e.g. a local lavatube network? a nearby crater? helping build a new home or road, etc.
- The Dayspan-Nightspan cycle experience and how lunan settlers have adapted to it with energy-intensive tasks performed during the 2-week long dayspan, and energy-light tasks during the 2-week long nightspan.

#### Messages for those on Earth who've never had, and may never have such an experience

- Lessons from living in a closed biosphere: how to minimize polluting one's environment, how to raise children to preserve their environment where everyone must live "downwind and downstream of themselves."
- Trash and Refuse as raw materials for arts and crafts "waste not, want not" taken seriously!
- Mutual cooperation. Settlers are in this together. Together they will prosper; one by one they will fail.
- Tourists visiting a site with "settlement potential" need to see and experience something special and this will spur settlers to concentrate on offering just that, thereby accelerating the development of a diverse culture that they themselves will love and cherish.
- Without tourists from Earth, settlers will be less motivated to experiment and thus far less likely to see their new lives on the Moon as fulfilling as they might be. PK



#### A free "take home" must

#### for Tourists from Earth

#### By Peter Kokh

Tourists may have a weight and size limit to what they can bring home from the Moon. That's to be expected. (Will lighter weight tourists have a larger weight limit to souvenirs?)

Yet, for those settling the Moon, it will be in their own interests – to spur more tourism – that they be allowed to bring home things that will catch the interest of others. Logical restrictions favor small "sample" sized items: arts and crafts, settler type clothing items, trinkets, etc.

At least at first, many would like to bring home a casting of their "first bootprint" on lunar soil.

Well, there is a way to do this that involves no material shipment at all.

The tourist in a spacesuit, makes his/her bootprint in a moondust box. The bootprint is scanned in 3 dimensions and this scan is sent home to Earth electronically.

Once home, a company specializing in this, will use that scan to shape the original bootprint in a box of moondust simulant. This is then baked or "cast" and removed and given to the tourist as a special momentum. PK

# The "House on the Moon" Project

By Peter Kokh

'Moonhouse' Crowdfunding Project to Build 1st Art Show on the Moon The Moonhouse Project: An Art House on the Moon (Images)

http://www.space.com/26031-moonhouse-project-moon-art-installation.html http://www.space.com/26030-moonhouse-art-project-moon-images.html

May 28, 2014 – The artistic minds behind this crowdfunding project want to land a small red house on the Moon, as the first-ever piece of art on the lunar surface. Artist Mikael Genberg and others involved with the Swedish effort want to place a robotic, self-assembling, red house on the Moon by late 2015 atop a Space-X's Falcon 9 rocket along with Astrobotic's private Moon rover competing for the \$20-30 million Google Lunar X-Prize.

The Moonhouse would make the trip **folded up in a shoebox-sized package**. Once on the lunar surface, it will **unfold and self-assemble in 5-15 minutes as an 2.5 meters tall (8 ft) red house with white corners**.





Representatives with Astrobotic are planning on monitoring the assembly of the Moonhouse from the lunar surface using high-definition video cameras. Where? In "Lacus Mortis" (Latin: "Sea of Death") (Red/Yellow circle)

At the moment, Astrobotic's first destination is an area of the Moon called Lacus Mortis. This particular part of the lunar surface harbors a special feature called a "moon pit," which could actually be an entry to a network of subsurface lava tubes that could someday shelter human settlers humans from radiation, micrometeorite impacts and extreme temperature fluctuations. What better place to land the Moonhouse than right next to a place where people could settle for a long time in the future.

Lacus Mortis? Aside from any coal assets, this "lake" is on the logical route from Eastrern Mare Frigoris to Northern Mare Serenitatis, then to Mare Tranquilitatis and Mare Fecunidtatis. Mare Frigoris is the relatively narrow but very very wide stretch of lava plains that run 150 degrees east to west just south of 60 degrees north latitude, the limit of ice-filled craters. Why Astrobotics picked this location, we do not know, but it is not a bad choice to put a symbol of human intentions to one day make the Moon another home world for mankind.

The House on the Moon project will serve in the meantime, as a symbolic human "calling card." PK Learn more about the project and to help fund the lunar art installation: <a href="http://themoonhouse.com/en">http://themoonhouse.com/en</a>

#### Stay at Home Pioneers can and must Promote the Vision

Editorial Essay by Peter Kokh

There are many of us who see time passing too fast, and who would give anything to be a Lunar or Martian pioneer. We may not live to see the day, or get a chance to be among the chosen ones. But we can pioneer either or both worlds all the same, in many ways.

We can support organizations that promote exploration and settlement of new lands beyond Earth. Beyond membership and financial support, and getting involved in the development of new technologies that could help realize our goals sooner and more robustly.

But perhaps most importantly, we can work to pass on our vision to younger generations who by and large are too engrossed in the rapidly developing technologies of the here and now to care much about the above and beyond. There is so much happening in our present day world to distract young people and to keep them distracted. At 77, as of 12/11/2014, the amount of change and technology evolution I have experienced in my lifetime is mind-boggling. And young people can hardly be faulted for being engrossed with this rapid sequence technological change especially since it affects them in their everyday communication with others. To them, nothing else seems relevant.

#### Living "Downwind and Downstream of Ourselves" - on the Moon, on Mars, and yes, here on Earth

Other young people are indeed concerned with the rapid deterioration of the environment and the declining capacity of the Earth to sustain an exploding population at the expense of nature. Those who are concerned see saving the Earth as far more important than settling worlds beyond. Those who worry about passing on too much debt to our young, seem to think nothing of passing on to them a world ecology in ruins. Hypocrisy!

But it is the very technologies that we need to create self-contained biospheres in which pioneers must live "downwind and downstream of themselves" that offer hope of transforming the habits of us Earth-dwellers to do likewise. A lot depends on one's temperament and goals. If profits come first, then the environment will continue to degrade. And that will catch up to us. In the long run, Earth can prosper only if Earthlings learn to respect her, if necessary at their own inconvenience.

It took thousands of years to reach a world population of two billion. It has taken only 60 years to see that triple and on the way to quadruple. Those of us who want big families, could raise one of our own and adopt others. If we do not slow down present growth drastically, we will condemn our children to a nightmare of our own hypocritical making.

Many of the same technologies that will help us reach a more sustainable relationship with Mother Earth are very similar to those that will allow settlements on barren worlds such as the Moon and Mars, thrive.

Drawing the environmental connection between Earth and Settlements beyond is one way to attract the attention and earn the dedication of younger generations who stand to prosper or decline depending on the outcome of such an effort.

Making Space a place to test technologies that can save our mother world risks being too late for both.

Doing the research and development of such technologies here on Earth in modular naturally growing "analog settlements" will help us both save our decaying world and settle barren worlds beyond. For us "spacers" to see "environmentalists" as our enemies, and vice versa, is a sure way to doom both. Earth and Settlements beyond will either prosper together or flounder, decline, and all but perish together. We need to grow up. Getting older do itself does not mean "growing up."

We have for some time now pushed two initiatives:

- 1) Establish a Moon-Mars analog "settlement" facility to test life supporting environmentally sound technologies that will let us live "downwind and downstream of ourselves" on worlds beyond as well as here on Earth.
- 2) Start a series of conferences which focus on these common interests of Earth-focused environmentalists and Space-focused would-be pioneers of barren worlds. Many of the technologies that will help one will clearly also help the other. We need to leave enmities, scorn, and misunderstandings behind us. Political allegiances also. In short, it is time for all of us to do some soul searching and work together.

#### Humanity's future here on Earth and in the Solar System at large will go hand in hand.

And in this all important endeavor, we will find ways to re-establish communications with the younger generations who have the most to lose, as well as the most to gain.

#### Lets enrich Earth Day by transforming it to Mother Earth & Father Sky Day

After all, where would Earth be without the Moon and the Sun! Such an effort, starting April 2015, will help us preserve our most special world for those who will chose to remain here, as well as open new worlds beyond for those who would pioneer them.

#### Let us make Mother Earth the Mother of Worlds Beyond as well.

Temporary contact: Kokhmmm@aol.com - 414-342-0705

#### Fun Time About "Role" Names: "Sun" "Earth" "Moon" "Astronaut"

By Peter Kokh

#### "The Sun" vs. "Copernicus" reserving "Copernica" for the Solar System, Copernicans for ourselves

Human civilization has been slowly "growing up" the past ten thousand years or so. But in many respects we are still in the "Daddy" and "Mommy" stage. "Sun," it turns out, is a role name, yes, like Mother and Father. Our Sun shines on us, creating our day and night as Earth rotates "below" it.

We've always known about the stars, of course. But it was a while before we realized that "The Sun" too was a star. Although many writers so suspected, it is just recently dawning on us, that almost all stars are "suns" shining on a family of planets, many of them with one or more "moons."

"Sun" is a family role: It is our solar system's "daddy/father" or "mommy/mother" depending on your gender preference. Yes, we have "Sol" and "Helios" but they are just "Daddy Sun" or "Mommy Sun" in other languages. How do we give our sun a proper name?

Is it important? Yes, as we become more and more conscious that most if not all stars are "suns" and we dignify all the others with names, be it Sirius or Wolf 359 or BD+56°2783.

We could hold a contest, of course. Or we could let "leading astronomers" nominate names and then have "the public" (worldwide) choose. This "political" method would leave few happy.

We have another suggestion. Copernicus was first to realize that "the Sun" did not revolve around Earth which from time immemorial thought to be the center of the universe, and that Earth too, was a "wanderer" or "planet" all of which revolved around the Sun.

I suggest that we name our Sun, **Copernicus**, (its/our) Solar System **Copernica**, ourselves "**Copernicans**" "The Moon" vs. "Luna" vs. "SELENE"

"The Moon" is "Luna" meaning "the Moon" in the ancient Roman Latin language and in most languages descended from Latin: French, Spanish, Portuguese, Italian, Rumanian, etc.)

The Moon was always a proper name until we discovered "moons' around other planets. That discovery does not demote "Moon" to a common noun that should not be capitalized any more. Once Julius Caesar was followed by other Roman Emperors, who adopted "Caesar" as a title, we did not demote Julius to "Julius caesar" lower case. The haughty "keepers" of the English language are all off base in this regard.

We insist on capitalizing "Moon" when it refers to Earth's satellite.

Read why <a href="https://www.moonsociety.org/info/capiltal-M-for-Moon.html">www.moonsociety.org/info/capiltal-M-for-Moon.html</a>

But if you want to use Luna, go ahead, although following the historical path, we could call satellites of other planets "lunas" – plural, lower case. I think what will happen is that in time, there will be an autonomous lunar government and what they want to call 'their moon" will stick, and be capitalized. **The Lunar Republic? Luna? Selene?** Luna does have the advantage of being used in many languages, including English, even some languages not descended from Roman Latin. Of alternatives from other languages, **Selene**, Greek for The Moon, stands out. "Selenology" (the study of the Moon) is gaining currency. My call? "**Selene**" – adjective "**Selenian**"

#### "Earth" vs "Magellana" or "EarthSea" or "Terramar" or "Tellus" or "TERRESTRA"

Our home planet has a global ocean with major "continental" Islands. Earth, or Terra, in Latin and languages descended from that ancient Roman tongue, means land. Most planets are all land, or all ice. So "Earth" does not do our world justice. Latin Terra, and Greek Gaia mean land also, although of late, Gaia has come to stand for the Living Earth, our biosphere, or to Earth-Life as a living complex. This is a hard call. Terrestra is one possibility, as is Tellus, the Roman Goddess of the Earth.

Right now, as mild mannered a person as I am, I want to strangle astronomers who call rocky worlds "Earthlike." No, ocean-and-continent worlds are "Earthlike!"

A word that parsed as "EarthSea" would be perfect. In Latin that might be Terramar.

A fresh new suggestion would be "Magellan" after the first person to lead an oceanic expedition to circumnavigate our planet. Hmm? Who was the first person to realize that Earth was not the back of some gigantic turtle?

Tradition here is strong, and I expect we will call our planet "Earth" for a long long time. But how come we don't follow the precedent "Moon" and "moons" – i.e. why don't we call other planets "earths?" The answer is simple. We've always been aware of "planets" in our system: Mercury, Venus, Mars, Jupiter, Saturn named after ancient gods, and among them, Earth" is very, very special. My call? Terrestra as "Terrestrial" is already in common use. "Astronaut" vs. "SPACER"

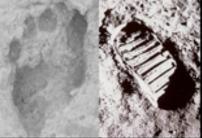
The word "astronaut" means one who navigates among the **stars**. Whoa! The furthest any human has been from Earth is 1.5 **light <u>seconds</u>** and the closest star, Proxima Centauri, is 4.24 **light <u>years</u>** away, or **134 million times further** than any "astro" naut has yet ventured.

Spacionaut, the French term, is much more appropriate. "**Spacers**" is shorter, and to the point. Moreover, It is "distance neutral" as space includes everything beyond Earth's atmosphere, whether it be within our Solar System or out among the stars or among clusters of galaxies. "Systemnauts" would be awkward. PK

#### THE MOON SOCIETY - LUNAR FRONTIER SETTLEMENT - WWW.MOONSOCIETY.ORG

From Africa to the Moon, the Human Epic, told in footprints, Continues to the Stars!







Our Goal is Communities on the Moon involving large scale industrialization and private enterprise.

#### The Moon Society Journal Section (pages 9-12)

#### **About the Moon Society**

#### Objectives of the Moon Society include, but are not limited to:

- Creation of a spacefaring civilization, which will establish communities on the Moon involving large-scale industrialization and private enterprise.
- Promotion of interest in the exploration, research, development, and habitation of the Moon, through the media of conferences, the press, library and museum exhibits, and other literary and educational means
- Support by funding or otherwise, of scholarships, libraries, museums and other means of encouraging the study of the Moon and related technologies
- Stimulation of the advancement and development of applications of space and related technologies and encouragement their entrepreneurial development
- Bringing together persons from government, industry, educational institutions, the press, and other walks of life for the exchange of information about the Moon
- Promoting collaboration between various societies and groups interested in developing and utilizing the Moon.
- Informing the public on matters related to the Moon
- Provision of suitable recognition and honor to individuals and organizations that have contributed to the advancement of the exploration, research, development, and habitation of the Moon, as well as scientific and technological developments related thereto.

Our Vision says it all - "Who We Are and What We Do" - www.moonsociety.org/spreadtheword/whowhat.html

We envision a future in which the free enterprise human economy has expanded to include settlements on the Moon and elsewhere, contributing products and services that will foster a better life for all humanity on Earth and beyond, inspiring our youth, and fostering hope in an open-ended positive future for humankind.

Moon Society Mission: to inspire and involve people everywhere, from all walks of life, to create an expanded Earth-Moon economy that contributes solutions to the major problems that challenge our home world.

Moon Society Strategy: We seek to address these goals through education, outreach to young people and to people in general, competitions & contests, workshops, ground level research and technology experiments, private entrepreneurial ventures, moonbase simulation exercises, tourist centers, and other means.

Interested in having input? Any member may ask to join the Leadership Committee and attend our Management Committee meetings held twice monthly. You may even express opinions. Decisions are often made by consensus, so this input has value. Write president@moonsociety.org

#### From Moon Society President Ken Murphy



During a recent online discussion, I made the point that for those of us advocating a human future in the Solar system, the Next Generation Science Standards are wholly inadequate.

The links to the Next Generation Earth & Space Sciences Standards are:

- Early Elementary: http://www.nextgenscience.org/less1-earth-place-universe
- Late Elementary: <a href="http://www.nextgenscience.org/5ess1-earth-place-universe">http://www.nextgenscience.org/5ess1-earth-place-universe</a>
- Middle School: <a href="http://www.nextgenscience.org/msess1">http://www.nextgenscience.org/msess1</a>-earth-place-universe
- High School: http://www.nextgenscience.org/hsess1-earth-place-universe

Those relating specifically to our Moon are:

- (a) Use observations of the Sun, Moon, and stars to describe patterns that can be predicted.
- (b) Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.
- (c) Analyze and interpret data to determine scale properties of objects in the solar system.
- (d) Use mathematical or computational representations to predict the motion of orbiting objects in the solar

http://www.moonsociety.org/publications/mmm\_classics/ or /mmm themes/ For past articles, Visit

#### The Moon Society - Lunar Frontier Settlement - www.moonsociety.org p.2

[Editorial continued]

That's it, a basic understanding of the phases of the Moon, its approximate size relative to Earth, and that it orbits the Earth. As I noted in my comment, Does this sound like adequate education to create a citizenry that can understand ideas of space development and settlement?

This was quickly strawmanned into "We should teach lunar and space development in schools," but the actual question remains compelling: What kind of public knowledge should we expect of a society that embraces the idea of not just space exploration, but also of development and tapping the resources and energy of space for the benefit of Earth? How can we sell people on the idea of a cislunar economy when many are convinced that if we mine the Moon it will destabilize the natural balance of the Earth & Moon and send it crashing into us, or cause huge 100' tides, or send the Moon spiraling off into the cosmos a la Space:1999. Seriously – I get that question nearly every time I make a public presentation, and it demonstrates an appalling ignorance of what we know.

Fundamentally, these standards provide no advance over knowledge that has been a part of civilization since pre-Christian times. And as many of you have no doubt experienced first-hand, even this basic level of lunar knowledge is beyond most folks. This is a part of why I have been urging members to get more involved in your communities to be educators about what our Moon can do for us. We don't need to settle for this.

But we need to hear from you.

We will be holding our State of the Society meeting on Wednesday, December 17th at 9pm Eastern time, 8 pm Central, 7 pm Mountain, 6 pm Pacific in the public meeting portion of the Artemis MOO.

Access is the same as for getting to your online copy of MMM. Give it a try following the instructions at: <a href="http://www.asi.org/adb/09/08/04/moo.html">http://www.asi.org/adb/09/08/04/moo.html</a>

If you have problems getting in, drop us a line.

One of the things to address at the annual meeting is how we in the leadership can help you do your Moon thing locally. What tools do you need? Videos, pre-prepared presentations, web links, other tools? Let us know, and come share your best practices with your fellow members. We can make 2015 a year where we double our membership and really start making a difference. It starts with you! KM

### **Moon Basics - What Every Student Should Know**

By Peter Kokh

This is "a quick starter list" of Moon Basics that should be in every student's science curriculum

- The size of the Moon, comparison with Earth and Earth's continents and with other planets
- Lack of atmosphere and why the Moon is dry
- The length of the lunar day-night cycle (dayspan)
- The Moon's temperature swings
- The "Man in the Moon" what is the difference between the dark areas and the light ones?
- The hidden Farside why it is hidden, how it looks
- The Moon's gravity
- Distance of the Moon from Earth; compared to distances of the planets
- What moondust is like
- Exposure to meteorites, radiation, and shielding needed for long term stays

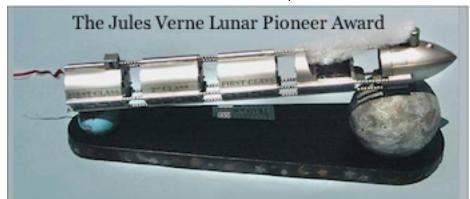
#### **Priorities for the Moon Society**

- Identify an adequate set of Moon Primers currently in Publication and rate them
- Recommend that these be added, as appropriate, to the curricula of
  - Early Elementary
  - Late Elementary
  - Middle School
  - High School
- We need to do this state by state
- To avoid censorship, we might stay clear of topics like the Moon's age, hoping that students will be interested enough to pursue this on their own.
- Stage essay contests at each level this is something chapters can pursue in their own areas, and in their own states finding and funding prizes large enough to attract attention will be a challenge, and perhaps area manufacturers or other companies might contribute prizes, especially companies with space-related business or operations. Let's get started! PK

#### The Moon Society – Lunar Frontier Settlement – www.moonsociety.org p. 3

#### A Moon Society Award Sculpture? The "Jules Verne Lunar Pioneer Award"

By Peter Kokh





Left: The proposed "Jules Verne Lunar Pioneer Award"

Right: Pat Rawlings "Space University"

In a number of recent years, The Moon Society has awarded "The University of Luna Award" to deserving individuals. This was part of an effort to launch an online "University of Luna," a bold effort proposed at The 1998 International Space Development Conference in Milwaukee, Wisconsin.

http://www.moonsociety.org/university/

The core idea of the "University" was to create **an ever growing collection of online links** to past, ongoing, and proposed Moon-focused missions and research, undertaken by various national space agencies, organizations, and educational and research institutions. Alas, the "University" never became real.

Perhaps it is time to replace the award with another, given by The Moon Society to individuals who have advanced the day when Lunar Settlement will have begun, and when frontier minded individuals born on Earth, their Mother world, will begin creating a new civilization on the Moon.

This photo illustrates Jules Verne's concept of a "Moon-bound Space Train" - quaint and 1860-ish - but very symbolic.

We propose a design along these lines, simple to produce: a small Earth globe (departure point) and a larger Moon Globe (the Moon would begin to look bigger than Earth as the "train" got ever closer to its destination.

We would need to put out requests for production cost of a number of these 3D awards, and if a good looking, but simple, and inexpensive as three-dimensional awards go proposal was received, decide whether or not to order a number, e.g.a half dozen for a start..

The award would need not be given each year, but only when we identified an individual whose work advanced the Society's goals.

In contrast, the University of Luna award was a framed certificate including a print of Pat Rawlings' "Space University" personally signed by him with gold ink.

The Three Dimensional "Moon Train" award would be much costlier to produce, and therefore more prestigious. It need not be given annually.

This is something for the Moon Society Leadership to discuss, perhaps after estimates of production of a number of such 3-dimensional awards are received. ##

**Note** that there are two existing awards by the same" name:

http://en.wikipedia.org/wiki/Jules\_Verne\_Award

http://en.wikipedia.org/wiki/Jules Verne Trophy

We need only add a qualifier - "The Jules Verne <u>Lunar Pioneer</u> Award" and indeed, the nature of the sculpture implies that. ## - PK

**Note:** The model above has a wood base, one (northern) ceramic hemisphere of Earth (smaller as "the world left behind") and another of the Moon (looming larger as "the destination ahead"), plus metal crafted Moon Train cars.

Note: This image was found on the web. We could design something similar. ##

#### The Moon Society - Lunar Frontier Settlement - www.moonsociety.org p. 4



#### **ORGANIZING "OUTPOSTS"**

Bay Area Moon Society, CA Outpost - South San Francisco Bay <u>http://www.moonsociety.org/chapters/bams/</u>
Contact: Henry Cates <u>hcate2@pacbell.net</u> Meeting the 1st Tuesday of the Month at Henry's home

Moon Society Nashville Outpost - Contact: Chuck Schlemm - <u>cschlemm@comcast.net</u>

#### **ORGANIZED CHAPTERS**

Milwaukee Lunar Reclamation Society - www.MilwaukeeLunarReclamation.org

http://www.meetup.com/Milwaukee-Space-Exploration-Meetup/ - http://www.space-Mlwaukee.com Contact: Peter Kokh - kokhmmm@aol.com - MEETINGs, 2nd Saturday 1-4 pm monthly except July, August, at Mayfair Mall lower level - DEC 6 (note: "1st" Sat) annual anniversary & potluck meeting.

2015 Schedule: We switch to room G150 for all meetings except our December one, in G110: JAN 10, FEB 14, MAR 14, APR 11, MAY 9, JUN 29, (JUL AUG)) SEP 12, OCT 10, NOV 14, DEC 12

#### Moon Society St./NSS Louis Chapter - http://www.moonsociety.org/chapters/stlouis/

http://www.meetup.com/Saint-Louis-Space-Frontier-Meetup/

Contact: Robert Perry <a href="mailto:surfer\_bob@charter.net">surfer\_bob@charter.net</a> - Meetings 2nd Wed monthly at Buder Branch Library, 4401 S. Hampton, in the basement conference room. We've been relaxing after a busy productive **Gateway to Space conference** Nov. 6–10 - **Next meetings DEC 10 - JAN 14 - FEB 11 - MAR 11 - MAY 8 - JUN 13**On Saturday, November 22nd, 6:30 pm at Hollywood Casino, we celebrated the success of our **Gateway to Space Conference!** Dinner at the Buffet came first. [It was wonderful! - ye editor, Peter Kokh)

#### NSS/Moon Society Phoenix Chapter - <a href="http://nssphoenix.wordpress.com/">http://nssphoenix.wordpress.com/</a> - c/o Mike Mackowski.

Meeting 3rd Saturdays monthly at Humanist Community Center, Mesa, 627 W. Rio Salado Parkway.

The Nov. 15, 2014 joint meeting of the Phoenix chapters of the National Space Society and Moon Society went very well with an attendance of 20, including two new people. Chapter president Mike Mackowski summarized the latest news from the Rosetta comet probe, his recent participation in the Gateway to Space regional NSS conference in St. Louis, and future plans and events for our Phoenix clubs. Our guest speaker was Eric Nichols of Orbital Sciences who spoke about the problems caused by orbital debris. His talk included a concept for a SCRAPsat space-craft that would rendezvous with larger pieces of debris and deorbit them. He proposed this could be accomplished feasibly and affordably by using cubesat technology.

We are planning a winter holiday party in December in lieu of a regular meeting, and plans were announced to host a SpaceUp event on March 7 as part of the Arizona Science and Technology Festival. Additionally, members were invited to consider running for local chapter office, as elections for the two year term will occur in January. Submitted by Mike Mackowski

**Tucson L5 Space Society – http://www.tucsonspacesociety.org/** Now serving Moon Society Members Contact: Al Anzaldua – Meets monthly, every 2nd Saturday, 6:30 PM

# **Clear Lake NSS/Moon Society Chapter (Houston)** - Eric Bowen eric@streamlinerschedules.com www.calendarhome.com/cgi-bin/calforward.pl?user=/nss-houston-moon -

Meeting 7 pm in the conference room of the Bay Area Community Center at Clear Lake Park – Even # months Annual Christmas Party: We will have our annual holiday party in the home of Anita Gale in Nassau Bay on the shores of Clear Lake the evening of Monday, December 15 from 6:30 p.m. until ???! You are welcome to come and bring a guest; RSVP on or before Monday, December the 8th, so that we can prepare a suitable amount of comestibles for a sit-down meal with lasagna, appetizers and desserts; contributions of appetizers and/or a dessert please welcome but notify us first. Please do not bring pre-teen children as there will be alcohol available.

Once you RSVP (to <a href="info@nss-houston-moon.org">info@nss-houston-moon.org</a>; please include "RSVP" as the <a href="beginning">beginning</a> of your subject line), we will reply with the address and detailed directions to Anita's home. We will include an .ics Calendar event for Outlook and Thunderbird Lightning users unless you request otherwise. ##

#### Greater Fort Worth Space Chapter c/o Patricia Ferguson tricia3718@gmail.com

#### NOVEMBER 2014 SPACE NEWS BROWSING LINKS

#### SPACE STATIONS + COMMERCIAL SPACE

www.spacedaily.com/reports/Work\_completed\_on\_satellite\_launch\_center\_in\_Hainan\_999.html

www.space.com/27536-supersonic-near-space-dive-video.html

www.space.com/27861-3d-printer-space-station-first-part.html

www.space.com/27210-biosuit-skintight-spacesuit-concept-images.html

#### ASTRONAUTS + SPACE TECHNOLOGY

http://abcnews.go.com/Health/gravity-affects-men-women-differently/story

www.space.com/27399-tentacle-robots-planetary-exploration.html

#### SPACE TOURISM

www.space.com/27629-virgin-galactic-spaceshiptwo-crash-full-coverage.html

www.space.com/27635-virgin-galactic-spaceship-broke-apart-ntsb.html

www.themoscowtimes.com/business/article/roscosmos-disavows-plan-to-send-space-tourists-to-moon/50 2381.html

#### moon

http://news.discovery.com/space/asteroids-meteors-meteorites/asteroid-capture-earth-gravity-satellite-mini-moon-130207.htm

www.space.com/19600-moon-base-concept-3d-printing-photos.html

www.space-travel.com/reports/Russia Preparing Joint Moon Exploration Agreement With EU 999.html

www.space.com/27627-china-moon-mission-earth-return.html

www.space-travel.com/reports/UK\_group\_to\_crowd-source\_funding\_for\_moon\_mission\_999.html

www.lunarinitiatives.com

#### **MARS**

www.space.com/27760-organic-matter-on-mars.html

www.marsdaily.com/reports/Mars\_was\_warm\_enough\_for\_flowing\_water\_but\_only\_briefly\_999.html

www.indiegogo.com/projects/ma365-a-one-year-mars-simulation-in-the-canadian-arctic

www.space.com/27881-mars-life-search-cliffbot-robot.html

#### ASTEROIDS + COMETS

www.space.com/27808-asteroid-vesta-best-maps-dawn-mission.html

www.space.com/27757-rosetta-comet-landing-philae-science.html

www.esa.int/Our\_Activities/Space\_Science/Rosetta/Pioneering\_Philae\_completes\_main\_mission\_before\_hibernation

www.space.com/27767-philae-comet-landing-nearly-failed-infographic.html

www.space.com/27801-philae-comet-lander-recovery-possible.html

www.space.com/27588-nasa-asteroid-capture-mission-mars.html

#### OTHER PLANETS + MOONS

www.spacedaily.com/reports/Extreme Shrimp May Hold Clues to Alien Life 999.html- (Europa)

www.space.com/27880-saturn-moon-titan-origin-life.html

www.space.com/27725-saturn-moon-titan-sea-depth.html

www.space.com/27770-extreme-uranus-storms-puzzle-astronomers.html

www.space.com/27793-new-horizons-pluto-spacecraft-wakeup.html

www.space.com/27416-new-horizons-mission-beyond-pluto.html

www.nasa.gov/press/2014/october/nasa-s-hubble-telescope-finds-potential-kuiper-belt-targets-for-new-horizons/

www.spacedaily.com/reports/How Can We Search For Life On Icy Moons Such As Europa 999.html

#### **EXTRASOLAR**

http://www.space.com/27589-alien-planets-multiple-suns-tatooine.html

http://www.space.com/27828-alien-planet-magnetic-field-strength.html

www.spacedaily.com/reports/Moons\_Can\_Help\_Planets\_Remain\_Stable\_Long\_Enough\_for\_Life\_to\_Form\_999.html www.asianscientist.com/2014/11/in-the-lab/space-final-frontier-silicon-chemistry/

www.space.com/27765-starshade-tech-alien-planet-search.html

#### EDUCATION + OUTREACH + MEDIA

www.nasa.gov/press/2014/november/nasa-selects-student-teams-for-high-powered-rocket-challenge/www.space.com/27419-nasa-space-robot-name-contest. html

#### MMM NEWS PHOTO GALLERY





SpaceShipTwo crashes - http://www.space.com/27635-virgin-galactic-spaceship-broke-apart-ntsb.html





First product of Space Station's 3D Printer

Discovery of how Oceanus Procellarum formed

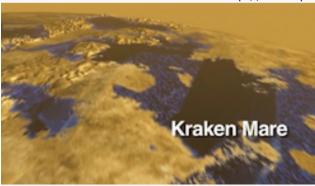
http://www.space.com/27861-3d-printer-space-station-first-part.html





http://phys.org/news/2014-11-comet-probe-science-treasure-hours.html

http://www.space.com/27451-private-mars-colony-feasibility-study.html





www.space.com/27725-saturn-moon-titan-sea-depth.html

www.space.com/27793-new-horizons-pluto-spacecraft-wakeup.html



From Jean-Luc Auvergne, Nov. 30, 2014 via the Editor's Facebook Page - https://www.facebook.com/peter.kokh



# First Light, the International Astronomy Magazine www.firstlight-magazine.com

With our nonprofit organization based in Paris, we have just launched a new astronomy magazine: First Light is totally different of what already exist in English. It's digital, interactive and available on any kind of device, everywhere in the world. With my coworkers we produce high quality journalistic contents: in-depth investigations, field reports from all over the world, portraits, extensive interviews.

Note also that telescopes are tested with professional means to know the real quality, and that the Nobel Laureate George Smoot is our editorialist in every issue!

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http://l.facebook.com/l/OAQGw\_z8UAQEdXo941SDdxgx3GnC\_urjX6ySJI-xZHBH\_Sg/firstlightmag.com/

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In Google Play store:

http://l.facebook.com/l/YAQFhAaSzAQEELqZfotOp3fqwKoy5jiKb2O0MHEayyJnGbg/goo.gl/tvnS1n In iTune store:

http://l.facebook.com/l/CAQGchcMUAQE28gLelQ7xZ7QKpgEduM6PZgN18vu1YSll5g/goo.gl/onrEu9 In Amazon store:

 $\underline{http://l.facebook.com/l/6AQFqtYgGAQEHxo\_QZVZK\_QN8ZdUkkVnPzud3G6IufGdCvw/goo.gl/PlvZl4}$ 

If you don't have a smartphone nor tablet, we have a web reader on our website, but it's really better with the app and a mobile device.

To follow us on Facebook, goto https://www.facebook.com/FirstLightMagazine

# NOTE: As per custom since year one, There will be NO JANUARY ISSUE OF MMM

to provide the Editor with his semi-annual burnout-prevention break (It works!)

# Let us know if you would like to get MMM in e-pub format to read on your Tablet or Android Smart Phone

Kokhmmm@aol.com + murphydyne@hotmail.com

# 2015 International Space Development Conference May 20th - 25th, 2015 in midtown Toronto, Ontario, Canada



Hyatt Regency Hotel, 370 King Street West

<a href="http://torontoregency.hyatt.com/en/hotel/home.html">http://torontoregency.hyatt.com/en/hotel/home.html</a>

Hosted by the Canadian Space Commerce Association & the National Space Society

<a href="http://isdc2015.nss.org/wordpress/">http://isdc2015.nss.org/wordpress/</a> - Sign up now for low advance rates

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http://www.dmv.org/driving-abroad/passport-license.php

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#### **Toronto + City Attractions**

- <a href="http://en.wikipedia.org/wiki/Toronto">http://en.wikipedia.org/wiki/Toronto</a>
- <a href="http://www.seetorontonow.com">http://www.seetorontonow.com</a>
- http://www.toronto.com

MMM #281

- https://www.google.com/?qws\_rd=ssl#q=toronto+points+of+interest&revid=-1
- http://www.tripadvisor.com/Attractions-q155019-Activities-Toronto Ontario.html
- http://gocanada.about.com/od/canadiancities1/tp/tor attractions.htm
- http://en.wikipedia.org/wiki/CN Tower

Get yourself a great Christmas Gift Register for ISDC 2015 Toronto

#### **Chapter Resources**



#### The Space Chapter Hub - <a href="http://nsschapters.org/hub/hub">http://nsschapters.org/hub/hub</a> main.htm

While, this site has not been updated in some time, there are still some valuable leads, ideas, and project suggestions that will help your chapter become more effective. If your chapter is stuck on "not guite dead yet" you might find some suggestions here.

Meetings and Agendas, Newsletters, Project Menus Unlimited, Events Calendar, Publicity and Media Contacts, Political Contacts, Educational Contacts, Growing your Chapter, Chapter Scrapbooks, Downloadable Flyers, Presentations, Exhibit System Blueprints, Models, Chapter produced videos, Websites, Speakers Bureau, Science Fiction Conventions, Websites, Merchandise, etc.

Help Needed: This site was built in 2000 to assist chapters of the National Space Society, the Moon Society, and the Mars Society. Updates since have been spotty. If you would like to step forward and take charge of updating this site, contact Peter Kokh at kokhmmm@aol.com 414-342-0705. \*\*

#### **NSS Chapters that share Moon Miners' Manifesto**





Space Chapter HUB Website: <a href="http://nsschapters.org/hub/">http://nsschapters.org/hub/</a> Feature Page: Project Menus Unlimited http://nsschapters.org/hub/projects.htm

WISCONSIN



#### MLRS - Milwaukee Lunar Reclamation Society

PO Box 2101, Milwaukee, WI 53201 - <a href="https://www.moonsociety.org/chapters/milwaukee/">www.moonsociety.org/chapters/milwaukee/</a> www.Space-Milwaukee.com - http://www.meetup.com/Milwaukee-Space-Exploration-Meetup/

Ad Astra per Ardua Nostra = To the Stars through our own hard work!

PRESIDENT/MMM EDITOR • Peter Kokh NSS 414-342-0705 - kokhmmm@aol.com VICE-PRESIDENT Doug Armstrong NSS (414) 273-1126

SECRETARY - Charlotte Dupree NSS (262) 675-0941 grdupree@charter.net

• James Schroeter (414) 333-3679 - james\_schroeter@yahoo.com

TREASURER/Database - • Robert Bialecki (414) 372-9613 - bobriverwest@yahoo.com ( • Current Members of the MLRS Board of Directors)

December 6th Room G110 1-4 pm - our 28th anniversary pot-luck and sic-fi film - displays

Our 2015 Meeting Schedule: We switch to room G150 for all meetings except December, in G110: JAN 10, FEB 14, MAR 14, APR 11, MAY 9, JUN 29, (SUMMER BREAK) SEP 12, OCT 10, NOV 14, DEC 12

ILLINOIS



CSFL5: Chicago Space Frontier L5 - 610 West 47th Place, Chicago, IL 60609

#### WISCONSIN



# SSS - Sheboygan Space Society 728 Center St. Kiel, WI 54042-1034

www.sheboyganspacesociety.org c/o Will Foerster 920-894-1344 (h) astrowill@frontier.com SSS Sec./Tres. c/o B.Pat Knier dcnpatknier@gmail.org

DUES: "SSS" c/o B. P. Knier, 22608 County Line Rd, Elkhart Lake WI 53020

Meetings are at The Stoelting House, 309 Indian Hill, Kiel WI 53042 - 3rd Thurs even # months 2015 MEETINGS: FEB 19 - APR 16 - JUN 18 - AUG 20 - OCT 15 - DEC 12 (2<sup>nd</sup> SAT in Milwaukee)

#### CALIFORNIA



OASIS: Organization for the Advancement of Space Industrialization & Settlement Greater Los Angeles Chapter of the National Space Society PO Box 1231, Redondo Beach, CA 90278

Events Hotline/Answering Machine: 310–364–2290 – **Odyssey** Ed: Kat Tanaka <u>odyssey\_editor@yahoo.com</u> <u>oasis@oasis\_nss.org</u> – **Odyssey** Newsletter <u>www.oasis\_nss.org</u>/articles.html

Regular Meeting 3 pm 3<sup>rd</sup> SAT monthly - 2015 SCHEDULE; JAN 17, FEB 21, MAR 21, APR 19, MAY 16, JUN 20

#### COLORADO



DSS: Denver Space Society fka Front Range L5 1 Cherry Hills Farm Drive, Englewood, CO 80133

Eric Boethin 303-781-0800 <a href="mailto:eric@boethin.com">eric@boethin.com</a> - Monthly Meetings 6:00 PM on 3rd Thursdays, 7 pm Englewood Public Library, Englewood, CO 80110 - 1000 Englewood Parkway, First Floor Civic Center 2015 MEETINGS: JAN 15, FEB 19, MAR 19, APR 16. MAY 21, JUN 18



MSFS: Minnesota Space F

rontier Society - http://www.mnsfs.org

c/o Dave Buth, 433 South 7th St. #1808, Minneapolis, MN 55415

#### **NOVEMBER MEETING ELECTION RESULTS:**

Executive Director: Ben Huset -- Assistant Director: Rich Brown - Secretary: David Buth

Treasurer: Becky Huset -- State Councilors (1 yr.): Scott Shjefte;

(2 yr.): Drew Hagquist; (3 yr.) Craig Rostal -- Editor: Peter Kokh of Moon Miners' Manifesto

#### OREGON



Oregon L5 Society - <a href="http://www.OregonL5.org">http://www.OregonL5.org</a> PO Box 86, Oregon City, OR 97045

(LBRT - Oregon Moonbase) moonbase@comcast.net - Charles Radley: <a href="mailto:cfrjlr@gmail.com">cfrjlr@gmail.com</a> **Shari's** in Oregon City on 99E (sharis.com) 1926 SE McLoughlin Blvd Oregon City, OR

n City on 99E (sharis.com) 1926 SE McLoughlin Blvd - Oregon City, ( The Third Saturday of the Month at 2:00 PM

Announcing a cooperative agreement with the US Parks Service whereby we will hold meetings from time to time at the Pearson Air Museum, in Fort Vancouver. Our first meeting at this venue will be on DEC 20, 2014 at 2pm.

2015 Meeting Schedule: JAN 17, FEB 21, MAR 21, APR 19, MAY 16, JUN 20



#### NSS-PASA: NSS Philadelphia Area Space Alliance 928 Clinton Street, Philadephia, PA, 19107

c/o Earl Bennett, <u>Earlisat@verizon.net</u> - 856/261-8032 (h), 215/698-2600 (w) http://pasa01.tripod.com/ - http://phillypasa.blogspot.com

#### The NSSPASA Report for November 2014

**Meeting times and location:** Our next 2014 meeting will be at the Liberty One Food Court on Market Street. The meeting will be on December 6<sup>th</sup>, snow date the 13<sup>th</sup>. This will be our election meeting and we will see who wants to remain in office or change positions.

**Notes:** there was a snafu in putting our annual chapters report in and we had not filed a tax paper that is required. Luckily we where able to get this in guickly (thanks Mitch!) and we are now back in good standing in NSS.

Thanks are also due to Larry Ahearn for doing two things: he told us of this problem, so that it could be fixed, and second, he valiantly put together a package of material, at very short notice, for distribution at Philcon and other outreach events. I think some of this will be given at The Carver Science Fair in late winter and earlier at a public outreach event in January that Mitch is finalizing.

#### Philcon!

We had a great time at this event in spite of a few setbacks and limited table space. There were a goodly number of panels to see, and be part of, and interesting conversations during the event. Mitch put together our outreach table with a large amount of literature in the Dealers Room. I supplied a few of the "R is for Rocket, But, T is for Transportation" sheets. He had the most recent Ad Astras and other material from NSS to give the science oriented people walking by. About that Science orientation: Earl was on several panels , including on S.T.E.M., with a number of educators, engineers, and, rocket scientists.

One of the talks was: "Moon or Mars? Which should we go to?" This expanded into a talk of using asteroidal resources and mining the Moon for the resources to use for Mars exploration and eventual colonization.

The staging concept advocated in Buzz Aldrins' recent book, and writers in the Moon Miners for some time, was discussed especially at another related talk: "What if There Is\_Life On Mars?" about setting up a base on Phobos. In the earlier case it would be for control in real time of construction machinery and experiments , and in the latter case to avoid bio-contamination coming back here. The second panel included former NSSPASA member Tobias Cabral (Phd PSC.) as moderator. There was a lot more great stuff, including "And Then There Where Two" on the development of commercial transport to the I.S.S. and beyond. This talk was proposed by Frank O'Brien of our group.

#### In other news:

**Rosetta**, a cometary explorer launched in 2004, arrived at 67P on November 12. The craft included the **Philae lander** that landed, and bounced, and landed again on the comet. It tried to drill into the body, but, the drill snapped in the rock hard material (at the temperature of the comet the rock might be ice!). From Science News Nov. 1, 2014.

From the December 2014 Nuts and Volts "Cubsats-Part 1" by L. Paul Verhage. As Peter has suggested this could be The Year of the Cubesat. Part of the technology making Cubesats, and other shrinking spacecraft, possible is the radio gear both inside and for external transeption of the satellite. Some of the technology developed for The Internet of things could be used for this, and, vice versa. See the November issue of Microwaves and R.F. for" Tiny Transcivers Enable The Internet of Things" by Jean-Jacques Delise, Technical and Engineering Editor.

And two more publications: The majority of the December issue of **Wired** is about the possibilities of the events shown in the movie "Interstellar" coming to pass. The editor is Director Christopher Nolan. Get it! And the annual Mke Magazine issue that reviews 3D printers! This includes a new offering from Dremel, the Idea Builder, (that will sell at Home Depot locations!) and several Stereo Lithography machines.) This is a somewhat pricier arena of fabrication, but, gives better resolution for the constructs.. Also in this vein: there was a panel on 3D printing at Philcon nd the printer going to the I.S.S. ( and beyond eventually) was talked of and a quick demo of possible orientations was shown ( up, flipped, rotating, etc).

All for now, Earl Bennett, President, NSSPASA. ##

Moon Miners' MANIFESTO Milwaukee Lunar Reclamation Society, Inc. PO Box 2102, Milwaukee, WI 53201-2102





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