

# ANNOUNCEMENTS!

## ATTENTION CAS EXHIBITORS!

Here's the FINAL notice about framing and shipping your work to Novagraphics for the show at the California Academy of Sciences: Ship your work **FRAMED**, as per the original sent to you. All of the art will be evaluated on a case-by-case basis. Framing and glazing which is acceptable will be kept as is. Framing which is of unacceptable quality will be changed and the frame will be shipped back to the artist. Any glass will be replaced with plex. All other instructions, including shipping address and due date remain the same. Thank you for your assistance.

**ARE YOU ON-LINE?** If not, do you know what you are missing? Most of the day-to-day benefits of the IAAA come from being on-line and part of the list-server discussions. So what are you waiting for? **GET ON-LINE!**

## DO YOU KNOW A VENUE?

The IAAA World Tour is always looking for more venues. Is there a location near you which could support an art showing? Museum, planetarium, civic center? Think about this... could your painting career benefit from an international showing of your genre in your area? If you've got an idea, please contact Lynette Cook at e-mail address [lrcook@sirius.com](mailto:lrcook@sirius.com) or phone (415) 750-7132 during work hours (PST).

### Web Surfin' Sites to check out :

- [www.aerospaced.org/tempex/spaceart/](http://www.aerospaced.org/tempex/spaceart/)
- [mpfwww.jpl.nasa.gov/mgs/images/landing2.html](http://mpfwww.jpl.nasa.gov/mgs/images/landing2.html)
- [www.planetary.org/hot-topics/belize/](http://www.planetary.org/hot-topics/belize/)
- [www.calacademy.org](http://www.calacademy.org)



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**Apr / May 98**

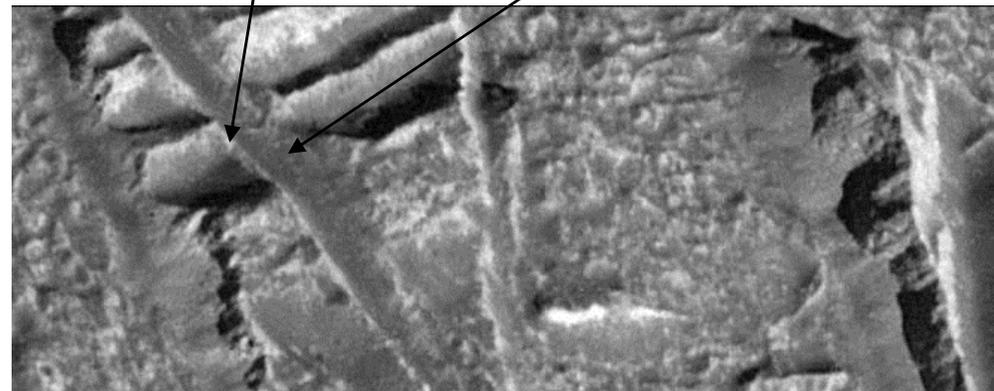
The Official Newsletter of the



International Association of  
**Astronomical Artists**

## COMING SOON – SKI EUROPA!!

The lift chairs will go here... the Chalet will go here...



Just one of the fantastic photos beamed back from Galileo. This view is of the Conamara Chaos region on Europa. For scale, the height of the cliffs are comparable to the cliff face of Mount Rushmore in South Dakota. Resolution is 30 feet per pixel! See the latest Galileo images at <http://www.jpl.nasa.gov/galileo/>.

**Editor: Jon Ramer**

**IAAA Website: <http://www.iaaa.org>**

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COLD VOLCANOES

By Jon Ramer

### From the Editor -

Hi Gang, boy have we had a busy month! The Kudos Korner is chock-block full of member activities! This month we highlight all the news and discussion about ICE around the solar system AND the kickoff of an official IAAA exhibition. Check out the announcements section on the back page. If you've got a blurb - send it in! 'Till next time -

*Jon!*

## Kudos Korner

- Mike Carroll and Bill Hartmann are in this month's Astronomy magazine
- Joe Tucciarone and Lynette Cook have some stunning images in last month's Sky and Telescope magazine
- Pat Rawlings and Michael Carroll have images in the recent Ad Astra
- Don Dixon has a cover and generous appearances throughout Scientific American's special issue "Magnificent Cosmos." Just look for the Titan cloudscape with the Saturn in the sky!
- Dan Durda did a fine interview on National Public Radio
- Dale Darby will have an image in a well-established Germany popular science magazine "P.M. Magazine" in May on extra-solar planets
- Jim Scotti did a great interview on NBC news tonight about the 2028 asteroid. Very informative while still responsible, sober, and well-handled in an area where media could really botch it!
- Jon Lomberg, Joe Bergeron and Don Davis have some outstanding images in this month's Sky and Telescope magazine
- Ralf Schoofs will be having an exhibition in the Public Library of Bochum, Germany from 1 May to 29 May, if you are in the area, drop on by!
- Detlev van Ravenswaay and Bob Eggleton have some nice paintings in the March issue of the German magazine "Image of Science." Bob is on the cover and inside with two paintings about galaxies. Detlev is inside with three paintings about dinos and asteroids

## Astronomical Feature of the Month:

### -- COLD VOLCANOES --

Are all volcanoes hot? You would think they were - which is precisely why members of the JPL team processing images from Voyager 2 were so astounded when they discovered what looked like active volcanism on Neptune's moon Triton. With a surface temperature of -235 degrees Celsius, Triton was thought to be a cold, frozen, inactive world.

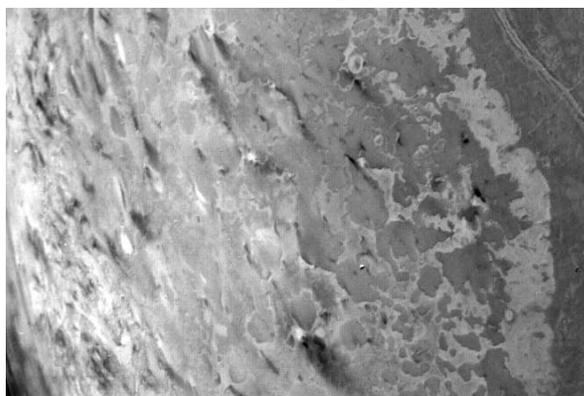
Far from it! Geysers blast plumes of liquid nitrogen 8,000 meters up into the air, where wind patterns make long dark streaks on the surface out of debris carried in the liquid.

The exact mechanism causing these eruptions is unknown, but all it would require is a little heat at the bottom of the ice cap. The warmth would evaporate some of the frozen nitrogen trapped beneath the ice, making a pocket of gas. When the pressure builds enough, gaseous and slushy nitrogen would burst through the ice as a geyser. The heat could come from tidal stretching of



### *Blues for Neptune* by Bob

Eggleton. A geysir shoots liquid nitrogen into the frozen atmosphere of Triton. Artwork available for purchase from Novagraphics.



the moon (like Jupiter's Io) or from a greenhouse-like buildup of warmth from the distant Sun by semi-transparent parts of the ice cap.

Whatever the cause, the effect is startling, totally unexpected, and definitely a subject for an IAAA painting!

*Left: Voyager photo of polar region of Triton. Note the dark streaks of material from geysers.*

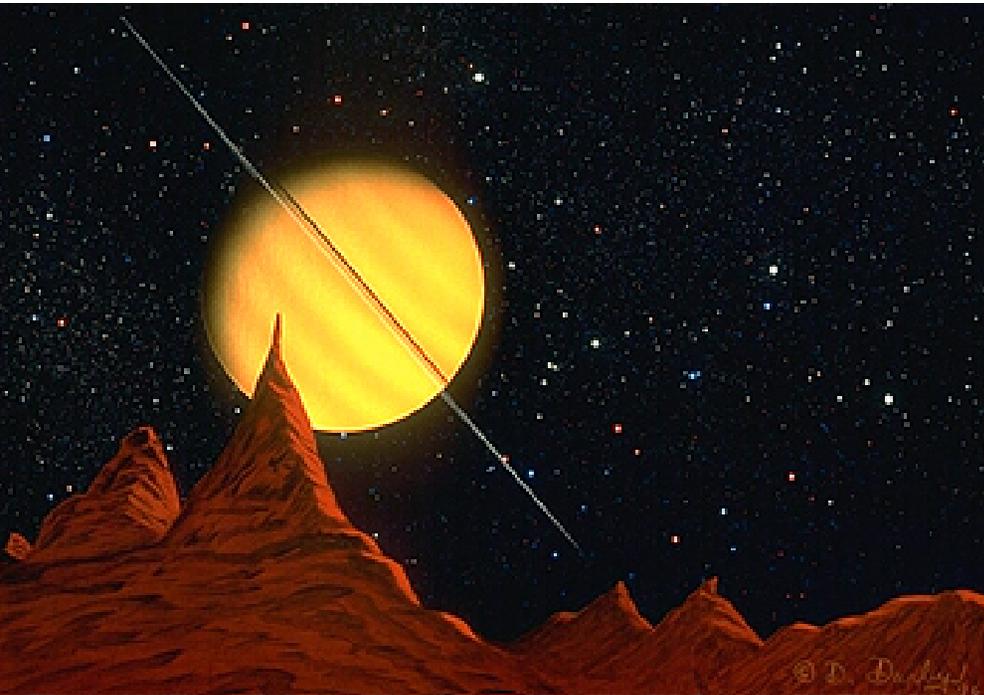
8000 meter tall geyser

Geyser plume



*Oblique angle Voyager image of Triton.*

Shadow of plume



*Sentinels* by Dale Darby. View of a ringed planet from an orbiting moon.

## Profile: Alexa Smith

First of all, let me say it's great to be a member as I've enjoyed so much of the art created by everyone in this group over the years. :) As a child of the 60's who grew up with the Apollo missions, your art was an inspiration along with the sci-fi TV shows, movies and books of the time.

I was one of those kids who always loved art and was lucky enough to be able to attend public schools where they had exceptional art programs. Over the years, I have experimented with most forms of art ranging from painting and drawing to ceramics, sculpture, and metalsmithing. None of these seemed quite right for me though until the day I took my first photography course. I loved the realism and manipulations you could perform with the camera and eventually received a B.A. in Photography from Southern Illinois University in Carbondale, Illinois. Since graduation in 1989, I combined my love of photography with my computer interests and have worked almost entirely in the digital realm since then.

My current art is based on space and nanotechnology as well as other future technological ideas. I feel we are on an accelerating curve, 50 years from now, our lives will be radically different from what we currently know. The idea of nanotechnology and other trends in science, such as quantum theory, seem to be leading to a horizon we can't see over as the changes will just be too great.

These are the more abstract ideas I try to portray (from a non-scientist!). Some of my images are currently exhibited on Nanothinc, Inc.'s website at:

<http://www.nanothinc.com/NanoWorld/NanoGallery/AlexaSmith/Biography.html>

The next series of images will be posted by summer for those interested.

Thanks for the warm welcome and I look forward to the future!

## "Houston, You Have a Problem" by Dale Darby.

Two astronauts on the Moon radio back their view of a killer comet.

This painting is part of the World tour.



## IAAA EXHIBITS AT THE C.A.S.!!!

From Lynette Cook

The California Academy of Sciences will be hosting an IAAA exhibit. Due to the limited exhibit space, only twenty-eight pieces could be chosen from a total of eighty-three entries. This collection is a feast for the eyes, including a wide range of subject matter and styles. Confirmed dates are July 25, 1998 - March 21, 1999.

Participating members are April Faires, Frank Lewecke, Molly Barr, Edwin Faughn, Sam Dietze, Anil Rao, Michael Bohme, Betsy Carroll-Smith, Dan Durda, Mark Garlick, Dale Darby, Joy Day, Aldo Spadoni, Robin Hart, James Scotti, Steven Florides, Cathie Yankovich, Lynette Cook, Roger Ferragallo, Joe Tucciarone, Bill Hartmann, Michael Carroll, and BJ Johnson. Artists in the United States, the UK, and Germany are represented.

Kim Poor has kindly agreed to receive the art works and assemble, crate, and ship them as a group to the Academy. Many thanks to Kim for spending his time and energy on the members' behalf.

Lynette Cook is collecting descriptions of the pieces from the artists, which will provide the basis for the exhibit labels. The Exhibits Department at the Academy will create the final copy and labels, as well as hang the show.

The exhibit will be in a temporary space on the west side of Earth and Space Hall, across from the Morrison Planetarium and Foucault pendulum.

The California Academy of Sciences is located in San Francisco's Golden Gate Park. It is a smaller version of the Smithsonian, in that it has both public exhibits and research departments. Besides being a natural history museum, it is also the home of the Steinhart Aquarium and the Morrison Planetarium (northern California's largest indoor universe).

## Profile: Rene' Decorvet

I was born in Geneva in 1963. I began making pictures at 14 years old with my first ink drawing, but I was hooked when I started using gouache. When I improved a bit, I bought my first airbrush at age 18. After finishing high school, I thought to become graphic artist, but couldn't gain entry to the Art School of Lausanne. I was more successful trying to enter the geology department at the University of Lausanne. After obtaining my Master's degree in geology, I continued my education, obtaining another master's degree specializing in hydrogeology. During all my studies I continued to paint illustrations and improve my know-how, but my production has lowered. Now I work as hydrogeologist in a private office of geotechnical and groundwater studies and consulting firm.

I am self-educated painter and I practice space art only during my free time. I use mainly airbrush, acrylic, and gouache. In the past three years, I have painted oil paintings with subjects other than space, but I have never given up space art. I make also digital pictures with an old PC (486/66) and with CorelDream, CorelDraw and PhotoPaint.

I have done two collective exhibitions :

- in 1987 in Les Diablerets, in the Swiss Alps, and
- in 1992 in La Maison d'Ailleurs (the House of Elsewhere, a museum of SF) in Yverdon, Switzerland, among Swiss manufacturers who products parts for astronautics and especially for the Ariane rocket.

Last October I did my first personal exhibition where I showed both illustrations and oil paintings. For the first time, I decided to sell my pictures.

My space art is influenced by sciences like astronomy, geology and astronautics. I try to transpose this knowledge in my illustrations in order to be as realistic as possible. But I try to bring a poetic and a sensitive vision of the cosmos too. I like to paint scenery of hypothetical blue planets, some starships and cosmic landscapes. These pictures are a journey and translate my fascination for the diversity and the vastness of the cosmos. This fascination lead inevitably to questions: the journey become a quest of the comprehension of the Universe and the part of the humankind in it.

I also like watching the sky with an 11 inch Schmitt-Cassegrain, sailing on the lake of Geneva, and walking in the Alps. I am married, my wife's name is Valerie, we have no children.



# LUNAR ICE

The past 12 months have been a banner year for astronomy with one incredible discovery after another - and March was no exception. On the 5th, NASA announced that data returned by the Lunar Prospector spacecraft had confirmed the presence of water ice at the lunar poles. Data indicates the ice is mixed in with the lunar regolith at 0.3 to 1 percent. This may not seem like much until you consider where it was discovered. There are two areas giving indications of ice, the first is between 10 and 50 thousand square km in size at the north pole. The second is 5 to 20 thousand square km around the south

pole. The instrument that detected the ice can get a reading to a depth of about half a meter. These numbers give an estimated bottom figure volume of ice of 10 BILLION kilograms - possible as much as 1,200 billion! That's a lot of water!

Lunar Prospector is part of NASA's Discovery program. Total mission cost is \$63 million. It has five main science instruments: the Gamma Ray Spectrometer, Magnetometer, Electron Reflectometer, Alpha Particle Spectrometer, and a Neutron Spectrometer. The spectrometer can determine hydrogen abundance and location on the surface to within 50 parts-per-million. This was the instrument that confirmed the presence of water on the Moon.

The spacecraft is a graphite-epoxy drum, 1.4 meters in diameter and 1.22 meters high with three radial instrument booms. It is spin-stabilized and controlled by 6 hydrazine monopropellant 22-Newton thrusters. There is no on-board computer. After launch a January 7th, 1998 from Kennedy Space Center, LP cruised for 110 hours, then was inserted into a 100 km altitude lunar polar orbit with a 118 minute period. Though the nominal mission duration is one year, a two year extended mission is possible, during which LP's orbit will be lowered to 50 km and 10 km altitude to obtain higher resolution measurements.

LP is the first US space mission to the Moon in over 20 years. Hopefully, it won't be the last!



## *Lunar Prospector* by Michael Carroll

**Profile: Diane Ellingham** Born in 1955, I grew up surrounded by the vast expanse and endless horizon of the Canadian Prairies. Typical of the region are dramatic windswept cloud formations which give way as the light fades to a sea of phosphorescent stars. In fall, magnificent panoramas are occasionally accented by the luminous dancing light of a northern aurora borealis.

Being a child of creative sensitivity and imagination, this animated canopy of cloud creatures and star beings embossed itself on my psyche, nurturing an incredible sense of mystery and insatiable curiosity about who or what was really out there.

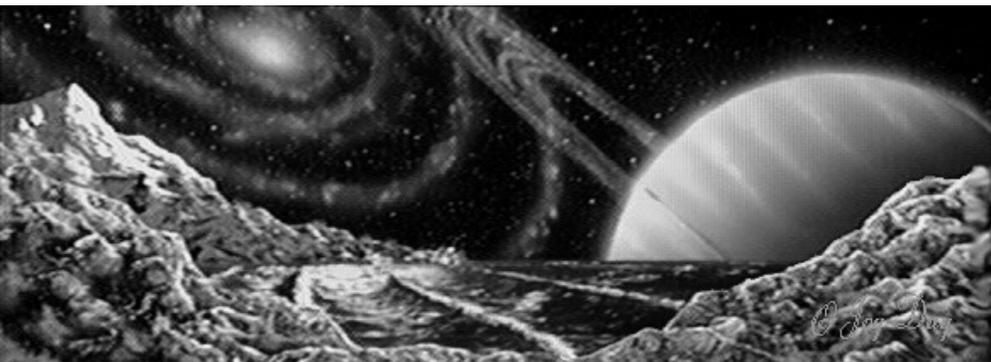
Later in 1987, as a self-taught landscape painter and graphic artist, I began having a series of vivid dreams about what the universe beyond our sight range might look like. Unable to resist and fueled by the celestial music of composer Jonn Serrie, I began to paint a body of space related artwork titled "The Starvision Series."

As the series grew, so did my determination to paint it more vividly, in spite of being warned by family members such colors couldn't possibly exist in space. Some time later, I would discover through publications like, "Visions Of Space, Artists Journey Through The Cosmos" that I was not alone in my quest to portray space in pure vivid tones. Nowadays, with actual deep space reference from the Hubble Telescope and unmanned probes, it's much easier to create the detailing necessary to bring my projected images to life.

Since then, inventing new techniques in watercolor layering, incorporating inks, acylics and experimenting with anything else I can find to produce dramatic textures and the effects I want, has become a driving force.

To date, the Starvision Series is comprised of 55 celestial paintings and grows every year with pieces in private collections throughout all of Western Canada and beyond, including the collection of Jonn Serrie.

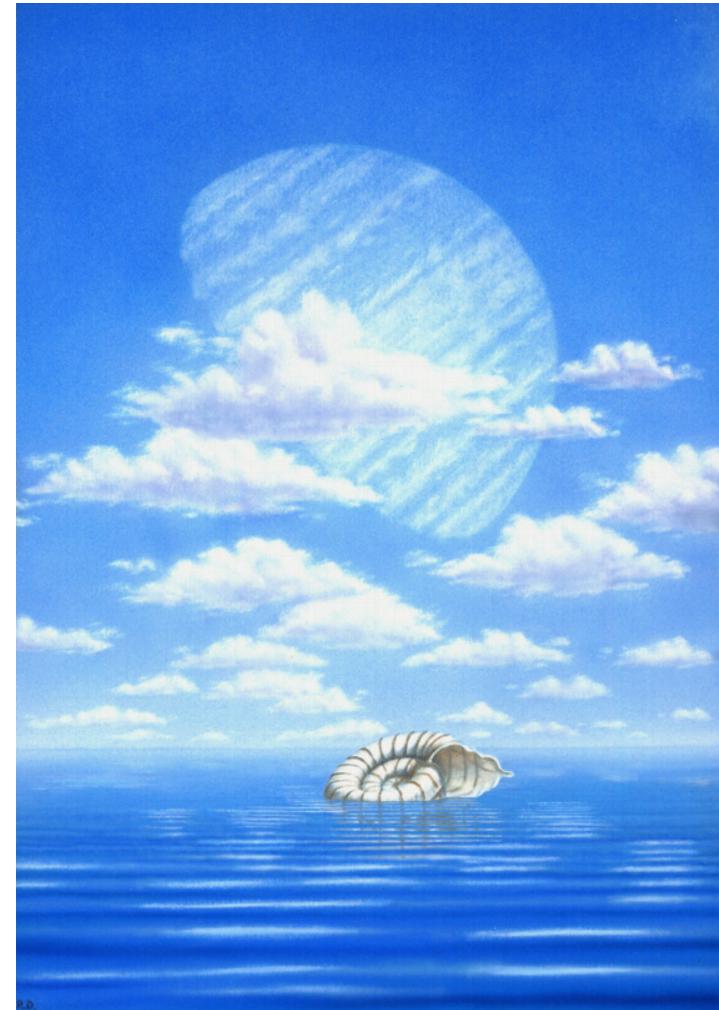
Recently, as a natural progression of working as a graphic artist, a new paint medium, digital rendering, is opening up exciting possibilities. Although relatively new to the Internet and field of multimedia in general, I've been quick to learn Photoshop 4 and look forward (thanks to IAAA's digital project) to the day when other toys like Painter and Bryce become a part of my pallet. I would also like to give animation a try.



*Waves* by Joy Day. A spiral galaxy watches waves crash on a distant beach of a moon orbiting a ringed planet.

## *Also Here* by Rene Decorvet

An Earth-like planet is in orbit around a giant gaseous planet, making this Earth-like planet a moon too. Here water is also liquid and the sky is blue. And here life ends too....



## **ART TIPS**

### **This month's tip is about painting ROCKS -**

Here's a little tip told by Bill Hartmann about a technique he picked up from Ron Miller. When painting a rock strewn foreground, it can be difficult to make all the little rocks that are scattered around. Here's a short cut. Take the base color of the area and make a few small batches of paint a few shades lighter and darker according to the color of your source of light. Dip your brush in water or oil (whatever your medium) then pick up some of the shaded paints. Next, lay the painting flat, hold your finger out over it, then tap the paint laden brush against your finger. Repeat with each shade. You'll get a pattern of flecked paint that looks like lots of small rocks! Be careful to cover areas of the painting you *don't* want flecked with rocks, as this technique can be a bit messy. Try it out, it looks great! One last thing... there is a nickname for the pattern of rocks created by this method - "Millerite." One guess why.... :)

Left: *Stars* by James Hull. One of the images shown in the *Imaginary Planet* concert with Justin Henry Rubin.

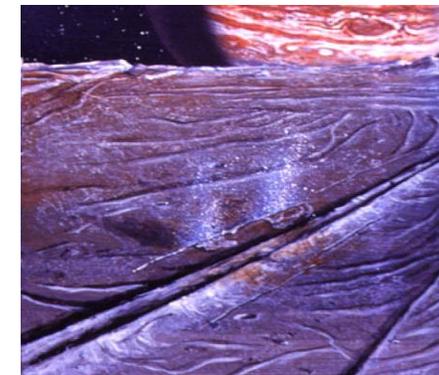
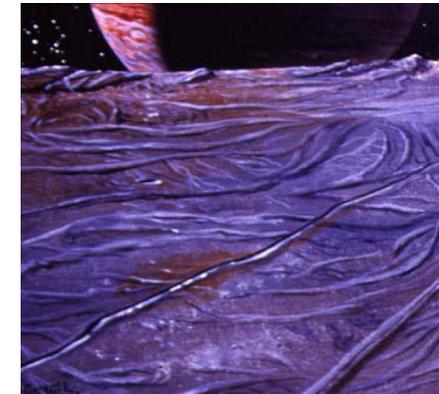


Figure 2 ↑

↓ Figure 3

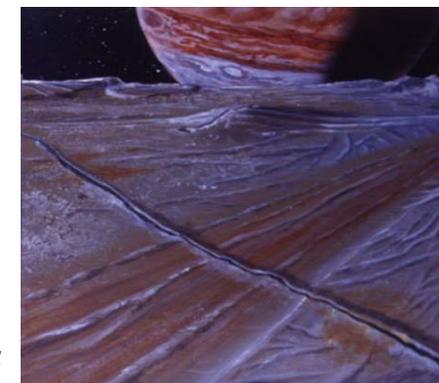
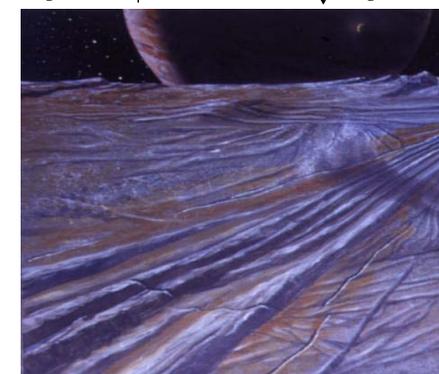
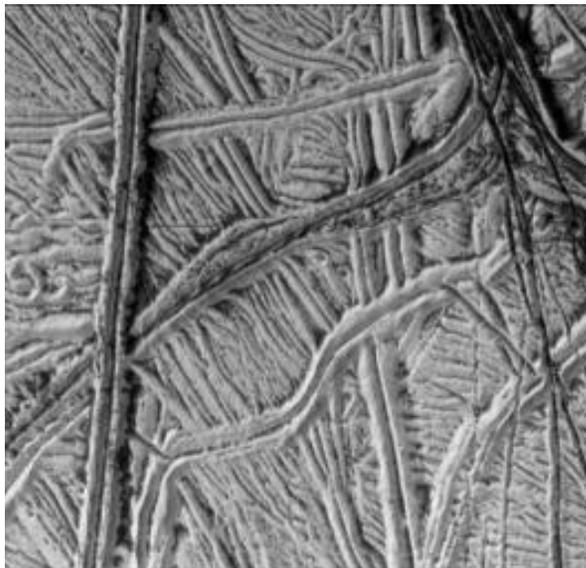


Figure 4

# EUROPA - THE ICY MOON

BY MICHAEL CARROLL ( & FRIENDS )



*Galileo orbit 14 high-res image of a ridged plain on Europa. Compare to Michael's images on the right.*

Ice, slush, crystals, bands, plates, and... water???

Europa is probably the most enigmatic moon in the solar system. Orbiting some 671,000 kilometers from Jupiter, the 3,100 km diameter moon zips around the great planet in just over three and a half days.

When two Voyager spacecraft flew by Europa in 1979, they glimpsed a unique worldlet with mysterious brown fractures across its smooth surface. In some cases, these brown lines had stripes down the middle, earning the nickname "highways".

These so-called triple bands had an unknown origin, and

the baffled scientists hoped more detailed views from the Galileo orbiter would clear up the mystery. Galileo has given us spectacular images of Europa and the other Galilean satellites. During its extended "Galileo Europa Mission" (GEM), the craft promises to show us even more. But the triple bands are more complex than originally thought. Theories abound, but Ron Greeley and other planetologists at JPL believe Europa's triple bands may form in this way:

a) Bands begin as thin cracks in the surface. (Figure 1 on the right. Note the "floating iceberg" formations on the horizon at left.)

b) Liquid water seeps --or explosively escapes --to the surface and flows outward, building up linear ridges on either side of the fracture. (Figure 2)

c) As the ridge becomes more massive, the ice crust cannot support its weight (despite Europa's gravity being around half of the Moon's) and more parallel fractures form. These cracks, in turn, go through the same process until several parallel ridges rise from the surface. (Figure 3. Note the dome forming in the background, perhaps indicative of volcanism on the ocean floor under the ice.)

d) The ice crust cannot support any taller structures; the fully formed triple-band then begins to sink back into the surface, ultimately leaving a smooth, striped plain. (Figure 4. Note the darkened spots along the crack.)

Those dark spots and the brown bands mentioned above have created a great deal of speculation. What is causing all the color variations? Could it be

geysering or cryo-volcanism of liquid from below? Dale Darby wondered if radiation from Jupiter would do something to the ice. Could cometary and meteoritic impact deposit some compounds that melting and/or sublimation could leave behind as stains? Bill Hartmann speculates that "primordial ice out there has sooty carbonaceous dust in it that colors it black. On Europa, most present ice probably erupted as liquid and the black stuff sank out. In general on the Galilean satellites, the black stuff is less volatile than the ice. Therefore MICROMETEORITE BOMBARDMENT will preferentially tend to sublimate the ice and leave the black stuff behind. So I have speculated that this is why the surface layers, especially on Callisto and Ganymede which have more primitive ice, tend to get darker. Europa, though, may be protected from this mechanism to some degree because it has pretty clean ice at the surface."

Perhaps the most intriguing thing about Europa is what's underneath. Models suggest a deep water ocean (up to 60 km) with active thermal vents on the ocean floor. Could these vents be host to an alien ecosystem whose organic material is staining the cracks on the surface ice? GEM will get spectral data of the bands in detail, so we may have more clues soon. Europa is a beautiful, frozen, and possibly violent world. All in all, it's a great place to paint!