Ogden Astronomical Society • Ogden Utah

THE STAR DIAGONAL

THE JOURNAL OF THE OGDEN ASTRONOMICAL SOCIETY

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THE PREZ SEZ

Greetings Earthlings,

Well as I reported in last month's newsletter I have been liquidating many of my astro goodies thru Astromart. Things were going quite well, posting/selling, posting/selling. Then last week in a blurred frenzy of posting I took a few pictures of my lovingly home built mirror grinding machine and posted it on A-mart, pick up only. Well, the next day I had two takers. Jeff Baldwin, prominent ATM'er from a high profile astronomy club in Stockton California and some guy named Steve who is feverishly gutting his van so the machine will fit. Did I mention that Steve will be coming from Kansas?

Well I am balking at the idea of selling the thing. Next to my big scope, the g machine is my second most prized accomplishment in my astronomical endeavors (what, not being prez of OAS?!?). You see I keep having this fantasy that Steve Dodds of Nova Optics (my friend who sold me the slightly chipped 25 inch blank) will call me one day and announce that he has spilled coffee on a 32 inch blank and it no longer meets his professional standards, and would I like to buy it for a couple hundred bucks? (Don't look at me like that, it could happen.) In which case the g machine assumes a prominent role in my ATM 'ing again. So I told Steve in Kansas to turn the van off for a couple of days while I wait for reality to catch up and overtake my fantasy.

In the meantime I have come up with a great new way to clean your optics. Just go out in the backyard to do some observing (and do to the current weather pattern we are experiencing) let Mother Nature clean your optics, your tube, eyepieces, mount etc. Then take it all back in the house, dry it with a hair dryer, take some pics and post them on Astromart, because I don't think it will ever stop raining.

The Prez

OAS Minutes – May 2011

The meeting for the Ogden Astronomical Society was held May 12, 2011 at 7:30 PM at the Ott Planetarium. President Ron Vanderhule started the meeting announcing Alcon at Brice Canyon National Park June 29th through July 2nd 2011, Ron didn't have any new information.

Stan Martin announced the Davis School district is putting on an Astronomy Camp June 7th to 11th 2011 for Junior High school students and teachers. Cost is $100.00 and includes a telescope, to register contact Jodi Lunt at " jlunt@dsdmail.net ".
Ron discussed last week's star parties; Adams Elementary School had some light problems with the athletic field and clouds but the star party was successful. Kent's Market star party was partly cloudy with some good views of the Sun, Saturn, and the Moon, there were about 15 people stopped by to look. Antelope Island was canceled due to cloudy weather.

Ron presented articles from spaceweather.com and Utube showing images from SOHO of comets hitting the sun. He then showed an article from Wikipedia of Earth's location in the Universe. He finished his presentation with a demonstration of scale for our solar system and our local group of galaxies. He used different sized washers to represent the galaxies attached to a coat hanger with everything to scale. Next was Dale Hooper with a Power Point presentation on his Observatory at his home in Hyde Park. He showed construction from footings to first light along with a video clip showing a tour of the

observatory. It is called the Calvin M Hooper Memorial Observatory, after his dad.

Next Stan Martin brought a video that was shown on the dome, a program called Journey to the Stars. It was produced by NASA, Lockheed Martin, and the Museum of Natural History and distributed to educators.

The meeting was adjourned at 9:15 and then several members met at Village Inn.

Lee Priest

Star Party Schedule

Our Proposed Public Star Parties are as follows.

Jun 4	Antelope Island
Aug 20	Antelope Island
Oct 1	Antelope Island (Sept)
Oct 8	Kent's Market
Oct 22	Antelope Island

Our Requested Star Parties (Schools, etc).

Jun 27 or 28	Mantua Girls Camp

Our Private Star Parties are as follows.

Jun 29- July 2	ALCon (Bryce Canyon)
Jul 27-31	Monte Cristo
Aug 24-28	Monte Cristo
Sep 23-25	Curlew

Lonely Rogue Worlds Surprisingly Outnumber Planets with Suns

Mike Wall, SPACE.com Senior Writer,
Space.com – Wed May 18, 6:00 pm ET

Astronomers have discovered a whole new class of alien planet: a vast population of Jupiter-mass worlds that float through space without any discernible host star, a new study finds.

While some of these exoplanets could potentially be orbiting a star from very far away, the majority of them most likely have no parent star at all, scientists say.

And these strange worlds aren't mere statistical anomalies. They likely outnumber "normal" alien planets with obvious parent stars by at least 50 percent, and they're nearly twice as common in our galaxy as main-sequence stars, according to the new study.

Astronomers have long predicted the existence of free-flying "rogue alien planets." But their apparent huge numbers may surprise many researchers, and could force some to rethink how the planets came to be.

"Previous observations of bound planets tell us only about planets which are surviving in orbits now," said study lead author Takahiro Sumi, of Osaka University in Japan. "However, [these] findings inform us how many planets have formed and scattered out."

Alien worlds under gravitational lens

Sumi and his colleagues made the find using a method called gravitational microlensing, which watches what happens when a massive object passes in front of a star from our perspective on Earth. The nearby object bends and magnifies the light from the distant star, acting like a lens.

This produces a "light curve" — a brightening and fading of the faraway star's light over time — whose characteristics tell astronomers a lot about the foreground object's size. In many cases, this nearby body is a star; if it has any orbiting planets, these can generate secondary light curves, alerting researchers to their presence.

Before the current study, astronomers had used the gravitational microlensing technique to discover a dozen or so of the nearly 550 known alien planets. (NASA's Kepler mission has detected 1,235 candidate planets by a different method, but they still need to be confirmed by follow-up observations.)

Sumi and his team looked at two years' worth of data from a telescope in New Zealand, which was

monitoring 50 million Milky Way stars for microlensing events. They identified 474 such events, including 10 that lasted less than two days.

The short duration of these 10 events indicated that the foreground object in each case was not a star but a planet roughly the mass of Jupiter. And the signals from their parent stars were nowhere to be found.

Independent observations from a telescope in Chile backed up the finds. Either these 10 planets orbit very far from their host stars — more than 10 times the Earth-sun distance — or they have no host stars at all, researchers said.

Common throughout the galaxy

Gravitational microlensing events are rare, because they require the precise alignment of a background star, a massive foreground object and Earth. So the discovery of 10 short-duration events in two years suggests a huge population of these unbound or distantly orbiting Jupiter-mass exoplanets throughout the galaxy, researchers said.

Sumi and his team calculated, in fact, that these planets are probably almost twice as common in our own Milky Way as main-sequence stars. And they likely outnumber "normal" planets with known host stars by more than 50 percent.

Other studies have established that it's probably pretty rare for huge planets to orbit more than 10 Earth-sun distances from a parent star. So the research team argues that most of the Jupiter-mass planets — at least 75 percent of them — are likely true "rogues," floating through space unbound to a star.

Theory predicts that such rogues should exist throughout the galaxy, and other researchers have found evidence of unbound objects that may indeed be orphan planets. But those worlds were much bigger, from three to 10 times Jupiter's mass, and there's a lot of uncertainty in the measurements.

Many of the previously detected objects could actually be "failed stars" known as brown dwarfs, Sumi said.

Sumi and his colleagues report their results in the May 19 issue of the journal Nature.

Rethinking planetary formation theories

The newly discovered rogue planets may have formed close to a host star, then been ejected from their solar systems by the gravitational influence of a huge neighbor planet, researchers said. Indeed, such planet-planet interactions are thought to be responsible for the odd, extremely close-in orbits of the giant alien planets known as "hot Jupiters."

But the abundance of the seemingly starless worlds may force astronomers to rethink some of their ideas about planet formation, according to Sumi.

The "current most recognized planetary formation theory (core accretion model) cannot create so many giant planets," Sumi told SPACE.com in an email interview. "So we need a different theory to create [so] many giant planets, such [as the] gravitational instability model."

In the core accretion model, dust coalesces to form a solid core, which later accretes gas around it, creating a planet. The gravitational instability model invokes the rapid collapse of gas, with a core forming later due to sedimentation.

The new study should inspire much follow-up research. One of the next steps could involve training more instruments on the microlensing alien planets, further monitoring them for any signs of a parent star. Such work, which may take years, could eventually reveal how many of these worlds actually do have parent stars, and how many are true rogues.

"The implications of this discovery are profound," astronomer Joachim Wambsganss, of Heidelberg University, wrote in an accompanying essay in the journal Nature. "We have a first glimpse of a new population of planetary-mass objects in our galaxy. Now we need to explore their properties, distribution, dynamic states and history."