

Winnicentrics

The Journal of the Winnipeg Centre of the Royal Astronomical Society of Canada

Leonids - Event of the Year!

What is this shower? The Leonids are a sight of a lifetime when they storm, and they are predicted to storm in large numbers this year. These meteors are debris from Comet 55P/Tempel-Tuttle.

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Where Should You Go?

Your priority as to where to observe Leonids from should be - first and foremost - a site where the skies will be clear!

Where in the Sky Should You Look?

For the 'storm' components of the Leonids, we doubt that you will have a problem recognizing the Leonid meteors. However, in the quiet nights leading up to the maximum, and after the main weekend, you may need some info on where to look. A map showing the movement of the Leonid radiant over time can be found at <http://www.imo.net/calendar/cal01.html#Leonids>.

The Leonids (LEO) will have a general radiant at 153 degrees, i.e. RA 10h 12m, Dec +22, which is about 2 degrees down to the right of the star zeta Leonis, the star called Adhafera, up in the 'sickle' of Leo. No matter where in the sky you see them, if you trace back the path of a Leonid meteor, it will seem to come from this area.

The radiant is an area, not just a point in the sky. In fact, with the earth intersecting several dust trails this year, there will be slight differences in radiant position. These may or may not be noticeable by a visual observer - but would show up in detailed photographic or video observations.

These are very fast meteors, with a velocity of about 71 km per second. Get comfortable in your lawnchair, and center your gaze about 50 degrees up in the sky. As these meteors are very fast, the fainter ones may be difficult to detect for beginning observers. If you concentrate on one direction in the sky, instead of moving all over, you will have a better chance of seeing more meteors, especially the fainter ones. And - a dark country sky is important!

Deadline for the next issue is
 December 30



Continued on page 6

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November

Beginners Session
with Scott Young 7:00
Regular Meeting 7:30

November
9
Friday

The Leonids Are Coming!

The most anticipated meteor shower of the year is coming in mid-November . . . are you ready? The November meeting will focus on the predictions for this year's Leonids meteor shower, and cover where and when to see them. Centre members will explain meteors and meteor showers, and cover the best observing methods.

Also: Lindsay Price will fill us in on the Moon; the next installment of the "Explore the Universe" observing program and Gail's "Constellation of the Month" looks at Cassiopeia.

December

Beginners Session
With Jay Anderson 7:00
Regular Meeting 7:30

December
14
Friday

This month we have a special guest speaker: Dr. Samar Safi-Harb of the Department of Physics and Astronomy from the University of Manitoba. Dr. Safi-Harb has worked with the Chandra X-ray Observatory, which is to X-ray astronomy as the Hubble Space Telescope is to optical astronomy.

Also: A review of the (hopefully successful) Leonid Meteor Shower observing expeditions; "Constellation of the Month", the continuing saga of the "Explore the Universe" observing program.



November

Observing Night
8:00 p.m. to ???
Glenlea Observatory

November
23
Friday

We're starting up our members' observing sessions once again, clear skies permitting. Come out and see what the night sky has to show and work on your Messier and/or Explore the Universe certificates.

Be sure to dress warm and bring plenty of hot chocolate.

Your hosts this month: Stan and Gail

The Leonids

After Midnight

November
18
Sunday

The Leonid Meteor Shower is due to peak on the morning of Sunday, November 18 about 4AM CST. There are actually 3 separate peaks, although 2 of them are only visible from the Far East (our roving reporter Jay Anderson will be in Australia to check out those peaks). While rates are somewhat uncertain (the theorists are arguing about whose model of the meteoroid stream is actually correct), they could approach as many as a thousand per hour from a dark site. From the city, you'll be lucky to see a handful due to bright city lights; likewise, observing before midnight is a waste of time.

OBSERVING

The following members are working toward their

Messier certificates:

Eugene d'Auteuil	32
Ray Philippe	12
Mike Karakas	87
Sean Ceaser	101
Robin Woods	49
Lindsay Price	5

Finest NGC's:

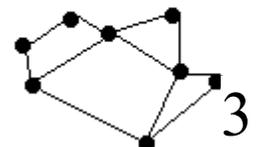
Stan Runge	5
Sean Ceaser	40
Gail Wise	83

Herschel 400's:

Sean Ceaser	84
Kevin Black	362
Gail Wise	191



**Are you working on your Messier list?
Explore the Universe?
Finest NGC's?
Herschel 400's?
Let me know how many you have and I will publish it here so we can encourage each other!**



Humans in Space

by Ray Philippe

This series takes us on a journey through time to explore the human race's quest for space flight.

Part 5

Continued from last issue

Immediately following World War II, Wernher von Braun and his rocket team were transported to the White Sands Missile Range in New Mexico. For the next several years, the German scientists reassembled V-2 rockets from the expropriated parts the U.S. army had shipped from Germany to the United States. Unaware of the advances Sergei Korolev was making in rocketry over in Kazakhstan, the U.S. military tested V-2 after V-2, launching them from White Sands and measuring distances and thrusts, wondering how rockets might fit into their military future. A few scientists were invited to load the V-2s with instruments such as cameras, barometers, and Geiger counters to study the upper atmosphere.

Meanwhile, von Braun grew frustrated. He agreed with the scientific use of his rockets, but he had come to America hoping to develop new, more advanced rockets to take humans into space, to the moon and to the planets; rockets such as his A-9 and A-10 that had been on the drawing board when he was at Peenemünde, Germany. Instead, he was relegated to reassembling rockets he had invented years earlier, with no prospect for innovation.

By the early fifties, the atmospheric

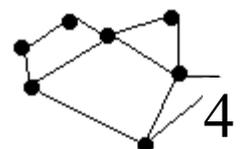
research scientists at White Sands were also

growing frustrated, but for different reasons than von Braun. When launched by the V-2, their experiments were only spending a short while in outer space before plummeting back to Earth. They longed for a rocket powerful enough to deploy their experiments into outer space and keep them there longer. Von Braun would have been happy to oblige, but the army was not interested.

In the mid-fifties, a project known as the International Geophysical Year (IGY) was launched in an effort to coordinate global high-altitude research with scientists from all over the world. The IGY would run from July 1957 to December 1958. As part of this project, participating nations were invited to launch a satellite into Earth orbit, an invitation the United States and the U.S.S.R. both accepted in July of 1955. And so the space race was on.

By now, in the U.S.S.R., Stalin had died, clearing the way for nonmilitary rocket applications. Korolev was already sending dogs, in the nose cones of his rockets, to the very perimeter of the atmosphere to measure the effects of space travel on living things. Khrushchev was now in power, and he saw Korolev's rockets not only as weapons, but also as lusty political symbols; proof that the communist system worked, and proof that the U.S.S.R. was a power superior to the United States. He wanted to find a way to demonstrate that superiority to the world without starting a nuclear war.

Launching a satellite was the perfect



answer.

Korolev chose a design that added sixteen engines to the base of his existing R-7 rocket, yielding enough power to launch a satellite now being called *sputnik zemli* (travel companion of Earth). The satellite was not very advanced. Inside it was a simple radio transmitter that would begin beeping after launch, informing Soviet scientists that it was indeed circling the planet. By August 1957, *Sputnik 1* and its launch vehicle were ready.

The U.S. satellite project, however, was faltering. The U.S. Army had proposed that Von Braun's Redstone rocket, an improved version of his V-2, be used as the first stage of the launch vehicle, but the Eisenhower administration had opted instead for the Naval Research Laboratory's *Vanguard* rocket proposal (the *Vanguard* program had its roots in the mid-1940's in a collection of U.S. Naval Research Laboratory (NRL) sounding rocket programs). But by the summer of 1957 all four of *Vanguard's* static firing tests had failed. Von Braun knew that *Vanguard* simply would not work, so he sought and was granted the government's permission to prepare a satellite launch as a backup to *Vanguard*.



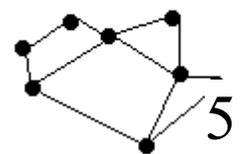
Sputnik: the companion

On October 4th, 1957, the Soviets stunned the American public by launching *Sputnik 1*, the world's first artificial satellite (it orbited the Earth once every 96 minutes for twenty-one days before burning up in the atmosphere). A media riot ensued. How could this happen? How could the number-one nation on Earth be caught with its pants down? Things such as the American education system and the free-market economy were brought into question. Details about the man who had orchestrated the launch remained cloaked in secrecy. The West was simply informed that the man behind *Sputnik* was known as the Chief Designer. Four weeks later, the Soviets launched yet another satellite, this one carrying a dog inside, and the world was again astounded.



The doomed Vanguard rocket

Meanwhile, *Vanguard* still sat at Cape Canaveral. The White House announced that *Vanguard* would be launched on December 6, 1957. On that fateful day, *Vanguard's* engines ignited, the rocket rose four feet off the launch pad, paused, then sank slowly back onto the pad, exploding in a thunderous ball of burning fuel. More media panic ensued. However, the United States did have a Plan B. Von Braun's backup project was quickly



sanctioned and the satellite was christened *Explorer I*. The rocket, named Jupiter-C, consisted of von Braun's Redstone rocket as the first stage, while the second, third, and fourth stages consisted of a battery of solid fuel rockets from the Jet Propulsion Laboratory. On January 31, 1958, *Explorer I* was launched into a flawless orbit, and von Braun became a national hero in the United States. Even though *Explorer I* was not the first or even the second satellite in space, its instruments were far more advanced than those on the *Sputniks*. And, like some kind of consolation, one of the instruments was successful in detecting radiation belts encircling the planet which are created when the Earth's magnetic field captures high-energy protons and electrons from the Sun (known today as the Van Allen Belts). This was the first scientific discovery to ever be made by a space probe.

Continued in next issue

Leonids *continued from page 1*

A Leonid Checklist

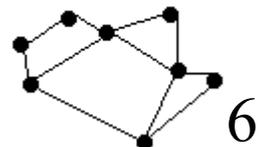
What do you need to observe the Leonids? The following is a basic checklist for those planning to observe this incredible meteor shower:

Warmth and comfort gear:

- a reclining lawnchair so you can lie back in comfort
- a foam mat to put on your lawnchair to insulate your back
- a heavy sleeping bag
- extra blankets
- a tarp to put over your sleeping bag to keep frost or dew off
- long underwear, then layers of warm clothing
- a warm coat
- warm wool socks - take your boots off
- warm mittens or gloves, and extra mittens
- wool hat
- a scarf to wrap around your neck and face
- handwarmers
- cookies for a 3 a.m. snack
- thermos of tea or coffee

Recording tools:

- paper and pencil and meteor recording sheets
- spare pencils
- preferably, pocket tape recorder, with paper as a backup
- if recorder, spare tapes and spare warm batteries
- red flashlight - and a spare red flashlight
- watch or clock set to UT, Universal Time
- star charts showing 'standard stars' to judge meteor magnitude
- star charts to estimate LM, limiting magnitude of sky



To take still photos of Leonids:

- a camera with bulb, i.e. time exposure, setting
- a normal or wide angle lens
- a tripod
- a cable release
- fast film, preferably ASA 400 or higher
- some method of keeping frost or dew off your lens
- a watch to time your photos (important)
- a notebook to record your exposure start and stop times

To take video of Leonids:

- a video camera with lots of spare battery packs
- a tripod
- a watch to time your video clips (important)
- if there is a time marker on your tape, set it properly ahead of time
- a notebook to record your exposure start and stop times

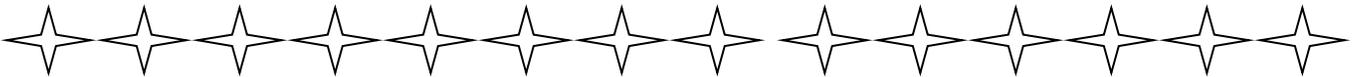
To see what the fainter Leonids look like near the radiant, or to look at Leonid meteor trains:

- a pair of binoculars

To help spread the word about meteors:

- bring your friends and family - the Leonids could be a once-in-a-lifetime experience!

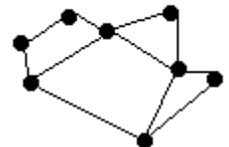
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The "NAMN" is an internet-based organization founded in 1995. Our aim is to encourage amateur visual meteor observing in Canada and the USA. To find out more about NAMN, see our site on the Web at:
<http://www.namnmeteors.org>*

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To join in, contact **Stan Runge** by email at stanrunge@hotmail.com or phone at 261-9984. I will forward you a form to advise the folks at Sky and Telescope of you joining our plan. You simply send it in with your subscription funds. Members who are currently subscribing to the magazine, should contact me before they renew their membership.



I have been a satisfied subscriber to this magazine for over 20 years, and enjoy it even more now, than ever.

WINTER ASTRONOMY VS. SUMMER ASTRONOMY*By Gail Wise*

Does it sometimes seem as though the other season has more going for it? How soon we forget.

WINTERSUMMERBy the time it gets dark

You can get in 2 or 3 hours of astronomy and still be home by 10:00.

Only 2 hours of sleep - or was it 3?

The necessary clothing

Who can move wearing 15 layers?

Even in August 2 a.m. can be chilly.

Exposed skin

The mosquitoes don't eat you alive.

You can change eyepieces without freezing your fingers off.

Good eye relief is important

Contact lenses can freeze to eyepieces.

427 mosquitoes can fit between the eyepiece and the eye.

How many hours do you want to be out there?

The Virgo cluster rises about 4 a.m.

You still won't have time to find half of them before the sun starts to rise.

Patience is a virtue

You have to wait for all the good stuff in Sagittarius.

You have to wait for all the good stuff in Orion.

Major meteor showers

How far are you willing to travel for clear skies for the Leonids?

How far are you willing to travel for clear skies for the Perseids?

The road to the observatory

You need 4 wheel drive to get through all the snow.

You need 4 wheel drive to get through all the mud.

