

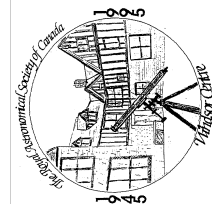
## Astrophotos by Mitch Arsenault



M82 (top) and IC 405 Flaming star (bottom): Altair Astro 115MM F5.8 EDT, Altair Astro 183~IMX Hypercam Mono, IOPTRON IEQ 30 Pro - 10 hours of total exposure for IC405.



# AURORA



November 2018

The Royal Astronomical Society of Canada - Windsor Centre

Volume 44, No. 3

## Flyer

### Next Meeting

Tuesday, January 15, 2019  
7:30 p.m.

at

[Ojibway Park Nature Centre](#)  
5200 Matchette Road

Speaker: It's a Movie Night!

Movie: *"To Be Determined"*

### Upcoming Events

**December Social:** Our annual Holiday Party for members and their families will be held on Friday December 7th at the Ojibway Park Nature Centre. Doors open at 5:30 p.m. and a "potluck" style dinner will be served around 6:30 p.m.. Please contact Mike Mastronardi at ([michael.mastronardi@stantec.com](mailto:michael.mastronardi@stantec.com) or 519-965-1705) to coordinate what you will be bringing and confirm the number of people in your party. We will also have a small (no more than \$20) gift exchange. For those who want to participate - please bring a wrapped present. Nancy Ng will have a constellation quiz and we will also be holding a raffle where you will have a chance to walk away with a small telescope or a mount.

**Geminid Meteor Shower:** Peaks during the morning hours of Friday December 14th.

**Winter Solstice:** Winter officially begins for the northern hemisphere at 5:23 p.m. EST on Friday December 21st.

## Monthly Meeting Minutes October 16, 2018

The monthly meeting of the **Royal Astronomical Society of Canada - Windsor Centre** was held at the Ojibway Park Nature Centre.

Windsor Centre **President, Mike Mastronardi** chaired the meeting. Mike called the meeting to order at 7:38 p.m. and welcomed members and guests to the Ojibway Park Nature Centre.

Mike invited members to review the **minutes of the September 18, 2018** meeting which were printed in the Aurora newsletter. A **motion to accept the minutes** of the September 18, 2018 meeting was made by Steve Pellarin and seconded by Dr. Susan Sawyer-Beaulieu. **MOTION CARRIED.**

**Mike** provided an overview of the meeting and introduced the main presentation.

### Main Presentation

Mike welcomed the **Royal Astronomical Society of Canada's past National President**, and current **Observer's Handbook Editor, James Edgar** to the floor for a talk on the *Synthesis of Elements*.

James started off with a quote from Dimitri Mendeleev, "...when the elements are arranged in order of increasing atomic mass, certain sets of properties reoccur **periodically**." The **periodic table of elements** has remained the same for decades, with a few noted elements recently being added to the list during the nuclear age.

Our Sun's makeup (percentage of total number of atoms): 91.2% Hydrogen, 8.7% Helium, 0.078% Oxygen, 0.0035% Neon, 0.03% Iron, 0.015% Sulphur, 0.043% Carbon, 0.0088% Nitrogen, 0.0045% Silicon, and 0.0038% Magnesium. Whereas most other stars comprise of 79% Hydrogen and 28% Helium. Stars with **small amounts of heavy elements** are called "**Population II**" stars which formed first from early gas clouds. Stars like our sun with less than 2% heavy elements are called "**Population I**" stars, which formed later from gases expelled and created in the earlier stars.

Within our star's core, the main processes of hydrogen include four nuclei fusing to make one helium nucleus, plus some gamma radiation and neutrinos. The **gamma radiation** make their way to the surface and emerge as **visible light, almost 20,000 years after their creation**. Helium collects at the centre over time, as all the hydrogen is consumed.

Supernovae occur as very massive stars "rapidly" run out of fuel. When the star collapses due to no nuclear fusion, it forms heavy elements from nickel to uranium. The energy output in a few seconds equals the entire 13 billion year life time of a typical main sequence star.

**Mike** thanked James for his presentation.

**Rick Marion** was welcomed to the floor to present the **proposed 2019 Council of the RASC – Windsor Centre**.

**Break and 50/50 draw.**

### Director of Observing Report

**Nancy Ng and Jessie Passa** were welcomed to the floor and opened their discussion with the **moon calendar** for October and November. **Full moon** will be on October 24<sup>th</sup> and November 23<sup>rd</sup>. **Venus** is at inferior conjunction on October 26<sup>th</sup>. This only occurs every 584 days. Currently in retrograde, **Mars** will slowly move through Capricornus, and become dimmer until April 2019. Both the Moon and Mars will be in the same constellation. The Moon will later pair up with **Saturn** on November 11<sup>th</sup>.

All stars have a **transit altitude**, which is the highest point in the sky. Currently **Deneb** will reach its transit altitude on October 6<sup>th</sup>, marking the start of cold weather. The **summer triangle** will soon be replaced with the winter triangle.

**Orionid meteor shower** will be visible from October 16<sup>th</sup> to October 30<sup>th</sup> and reaches a peak on the early morning of October 21<sup>st</sup>. This shower's host is the well-known Halley's Comet, producing around 25 meteors per hour. The next visible passing of the comet is expected in July 2061. The **Taurid meteor shower** will show between October 20<sup>th</sup> to November 30<sup>th</sup>, peaking on November 4<sup>th</sup>. Max visible meteors will be about 10 per hour.

A photo of the **Small Magellanic Cloud** by Steve Mastellotto was shown and discussed. Nancy provided some interesting information; the SMN is roughly 210,000ly away, and 7,000ly in diameter. A group of nebulae (NGC 248) was visible in the photo, it is 60ly long.

**REMINDERS:** Astro Luncheon at **SKIPPY'S RESTAURANT** every second Wednesday of the month, at noon. Located at 954 University Ave West, Windsor.

**Mike** thanked everyone for coming out to the meeting and reminded everyone that the **next regular membership meeting** would take place on **November 20, 2018 at 7:30 p.m.**

**Meeting adjourned at 10:12 p.m.** October 16<sup>th</sup>, 2018.

Recorded by Dan Perissinotti, RASC Windsor Centre Secretary