Ballaarat Astronomical Society supported By
Astronomical Society of Victoria
Astronomical Society of South Australia
VASTROC 2021 2nd October

STREAM 1	**Welcome** YouTube Link: https://www.youtube.com/watch?v=tme97qqNtjg **Keynote speaker:** **Prof. Christopher Fluke** Swinburne University of Technology SmartSat Professorial Chair Space System Real-time Data Fusion, Integration and Cognition What's the point of humans*? [* for data-intensive visual discovery] Abstract The on-going growth in the size (volume) and collection rate (velocity) of modern astronomical datasets is changing the way astronomers work. Indeed, in many instances, the vast majority of the data that is collected will never be viewed by a human. Instead, there is an expectation that automated discovery systems utilising artificial intelligence and machine learning methods will be responsible for most of the analysis. What, then, is the point of humans, particularly in astronomy, where visual discovery has played a prominent role? Lessons learnt from studying astronomers in their natural habitat has broader applicably to the development of "Cyber-Human Discovery Systems", where we seek to find a balance between automated discovery and human-centred insight in order to maximise the potential for discovery. **Dr John Wilkinson ASV & Bendigo** **Solar Cycle 25** John is a science educator with over 30 years experience in teaching science, physics and chemistry in secondary colleges and universities in Australia. He is the author of over 100 science textbooks. John also operates his own observatory from his backyard with interests in the Moon, Sun and solar system objects.
SREAM 2	YouTube link: https://www.youtube.com/watch?v=bw2nqTSIcsY **Phil Hart ASV BAS Astrophotographer** Lecture/Workshop Q&A 15mins Phil has travelled the Globe imaging eclipses , aurora and astronomical phenomena in 40 to -40 degree temperatures! Phil has received several awards for his images including David Malin and BIFB Open program Awards. **Judith Bailey – BAS ASV Observatory – Ballarat Municipal Observatory and Museum Manager -The Moon's Nodal Cycle - Tidal and Earthquake Consequences** 10min Q&A Abstract The cause and effect between the Sun, Earth and Moon's gravitational changes sometimes working together and sometimes working against each other, create a complex effect on the earth's crust and oceans. How can this affect earthquakes and sea levels through the 18.6 year Nodal Cycle of the Moon?

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STREAM 3	YouTube Link: https://www.youtube.com/watch?v=idhTpod6d2o **Dr Russell Cockman ASV - The Sun in Hydrogen Alpha wavelength** Director of ASV Solar Section. Live viewing if fine and Q+A (Further Bio below)
STREAM 4	YouTube Link: https://www.youtube.com/watch?v=4g1JvAbDW5I **Dark Sky Workshop** – Why do we need a Dark Sky, how can you help? – Chair Judith Bailey **Panel** - Introduction **Dr Russell Cockman** – President IDA Vic Russell is a retired industrial chemist who continues to share his passion for science by lecturing chemistry at RMIT University, Melbourne and as Observatory Guide at Melbourne Observatory. He continues to enjoy a long-time interest in astronomy as an avid observer and photographer of all things astronomical. Russell believes that starry night skies can be returned by design and implementation of appropriate outdoor lighting that minimises intrusion of artificial light into the night. **Dr Nick Lomb** - Nick is Adjunct Professor at the University of Southern Queensland. Previously, he spent over 30 years as Curator of Astronomy at Sydney Observatory and the Museum of Applied Arts and Sciences. Nick was Vice-President of the Sydney Outdoor Lighting Improvement Society for many years until he shifted to Melbourne, where he is closely involved with IDS Vic. **Dr Barry Clark** - BSc, MAppSc, PhD, DipMechEng Retired. Barry is Director, Outdoor Lighting Improvement Section, Astronomical Society of Victoria Inc. Barry is an amateur astronomer with over six decades of experience and desires sustainable reductions in the extent and brightness of artificial skyglow. **Associate Professor Margaret Grose** University of Melbourne. Margaret is an ecologist and landscape architect who teaches design and ecology for designers in the Faculty of Architecture, Building and Planning at the University of Melbourne. She teaches the health and ecological impacts of artificial night lighting to design and planning students, has published for the built environment about public lighting, and is interested in improvements to streetlighting in suburbs. **Jason Hammer** - ADvDipElecEng (Lighting), MIES, Director of Lighting and electrical Distributors, Jason started his career as an electrical design draftsman, working with Victorian Consulting firms before concentrating his passion for lighting into his chosen field. Jason is passionate about reducing impacts of artificial light on the environment and educating others on light pollution. **Barry Adcock ASV BAS Recording a Spectrogram of Planet Jupiter** Abstract- We see Jupiter in the sky by reflected light from the Sun and therefore it is reasonable to expect the spectrum of Jupiter to be very closely matched to the spectrum of the Sun. Both light from the Sun and from Jupiter pass through the Earth's atmosphere thus adding to the complexity of the measurement. The dark Fraunhofer lines are a result of light being absorbed by intervening material and are fingerprints of elements and compounds in the atmospheres of the Sun, Jupiter and the Earth. There are no compounds in the atmosphere of the Sun because of the very high temperature thus any extra lines can be associated with the atmosphere of Jupiter. Spectrographs of the Sun and Jupiter are presented in an attempt to find extra lines in the spectra of Jupiter associated with compounds such as methane (CH_4) or ammonia (NH_3). Measurement over a long period may show a relation to the presence of some compounds to solar activity.