The Tasmanian Geologist

February 2022

Meetings in 2022: put them in your diary

Wednesday 30th March Lila Landowsky Title TBA

Thursday 28th of April: Joint Meeting with the ASEG *Getting warmer: The search for geothermal resources in Tasmania, John Bishop*

Saturday 30th of April: AIG/GSA Autumn field trip to Cygnet

Sunday 15th of May *Joint meeting with the Royal Society of Tasmania: Geology, landscape and European settlement: small things meant a lot." about the geological controls on the development of Hobart Tony Webster*

23rd of June *AGM and Tsunami Hazards in Tasmania Claire Kain*

NEXT MEETING:
Joint GSA/SEG

Thursday 3rd March 6:00 PM

Speaker
Rod Allen

Welded ignimbrites and bedded exhalative ores at the huge Zinkgruvan Zn-Pb-Ag-Cu deposit in Bergslagen, . Sweden

Geology Lecture Theatre,
University of Tasmania Join us for pre-meeting
welcome back BBQ from 5:00 onwards
See special COVID19 procedures below

NEXT MEETING:

Welded ignimbrites and bedded exhalative ores at the huge Zinkgruvan Zn-Pb-Ag-Cu deposit in Bergslagen, Sweden

The Bergslagen mineral province in central Sweden contains over 7000 iron ore and polymetallic sulphide deposits hosted in 1.9 Ga meta-volcanic rocks. The polymetallic sulphide deposits have been divided historically into two main types that have very different characteristics and origin: the Åmmeberg or Zinkgruvan type and the Falun-type. The Falun-type are now regarded as VMS and intrusion-related skarn deposits, whereas the Zinkgruvan-type are regarded as stratiform exhalative deposits. The type example, Zinkgruvan, is a greater than 100 million tonne, stratiform Zn-Pb-Ag-Cu deposit that has been mined since 1857. The volcanic and sedimentary host-rocks at Zinkgruvan have been hydrothermally altered, metamorphosed to amphibolite facies and overturned such that the ore deposit now lies beneath the footwall succession. Most of the rocks are mapped as felsic and mafic metavolcanic gneisses and schists, marble and metasedimentary gneiss. The nature of the strongly K-feldspar altered stratigraphic footwall has been debated for many years, with the preferred interpretation being that they are a pile of distal reworked volcanic ash, deposited far away from their source volcano, in a deep to moderately shallow sea environment. Due to this distal volcano-sedimentary interpretation and studies of the alteration and mineralization, the ore deposit has been interpreted as most similar to sedimentary exhalative (SEDEX) deposits in terms of the ore forming fluids and style of deposition.

However, recent drilling that intersects the deep, down-dip extension of the one of the major ore bodies has revealed an area of the footwall volcanic rocks that have relict primary volcanic textures, and these textures suggest a very different origin for the volcanic rocks and for the setting of the ore deposit. The relict volcanic textures suggest that the footwall rocks represent a proximal (near-vent) volcanic facies association of felsic lavas, intrusions and pyroclastic deposits. A thick welded ignimbrite at the top of the footwall grades stratigraphically upwards into a non-welded, normal-graded, subaqueous mass flow deposit composed of pumice and ash, which is in turn overlain by meta-limestone (marble), siltstone and the bedded exhalative ore bodies.

Although the area of preserved relict volcanic textures is limited, these volcanic rocks can be "fingerprinted" using lithogeochemistry and then traced into areas where no relict volcanic textures can be recognized. This work indicates that the Zinkgruvan deposit formed within, or directly above, the caldera vent system of a large felsic volcano. Furthermore, the hydrothermal vent system to the ore deposit at least in part coincides with the volcanic vents of the volcano. The contact at the stratigraphic top of the footwall volcanics may be an erosional unconformity that marks uplift of the volcanic complex, possibly due to intrusion of new "resurgent" batches of magma into the Zinkgruvan volcano. Parts of the vent area of the volcano subsided, resulting in transgression of the sea and low-relief stromatolitic limestone mounds were formed in clear, relatively deep water, below wave base. This deposition of interbedded limestone and siltstone was interrupted by exhalation of metal-rich hydrothermal solution, which formed the stratiform ore lenses. Alternatively, the volcanic vent area continued to subside to water depths below that which stromatolitic limestone could form, and in which exhalative mineralization ponded.

Dr Rod Allen

Rod is originally from Adelaide and has been learning about rocks and geology for a very long time…from before the era of laptops and mobile phones, which according to his kids puts his birth not long after the big bang! He developed an early

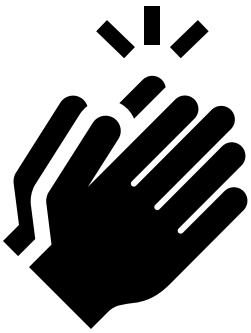
interest in minerals, mining and volcanoes, which he has kept and built on, becoming a specialist in the relationships between mineral deposits and volcanoes. He has been fortunate to work on

many exciting research, mineral exploration and mining projects in several countries, but especially in Australia and Sweden. He has been based in Sweden for the past 25 years, where he have been a professor in Economic Geology, Chief Geologist for the Boliden mining company and now works as an independent consultant. He is known for his practical, "hands-on" approach and expertise in the mapping, drill core logging, lithogeochemistry and interpretation of volcanic rocks, alteration systems and structurally complicated ore deposits.

Note COVID19 safe procedure:
Pre meeting BBQ 5 PM
Come to the Physics area and do your temperature check and we will need to see your COVID Vaccination tick on your COVID TAS SAFE App. or evidence of your vaccinations.
With the meeting in one of the lecture theatres you will need to wear a mask. **Do not come if you feel unwell**.
Looking forward to our first meeting of 2022 and seeing everyone at the BBQ. Hope you can stay for the meeting.

Register in ADVANCE for this meeting if you want to watch this via livestream
Register for Zoom here
After registering, you will receive a confirmation email containing information about joining the meeting.

CONGRATULATIONS



Distinguished Professor Ross Large

Long serving Geology Society of Australia Member Ross Large has been recognised for his contribution to the field of Economic Geology by the Society of Economic Geologist who have awarded him the prestigious R.A. F. Penrose Gold Medal for 2022. The Penrose Medal is awarded for significant career contributions to the field of economic geology

and is an apical award worldwide for the society. We will congratulate Ross in person at our **next meeting on the 3rd of March**.

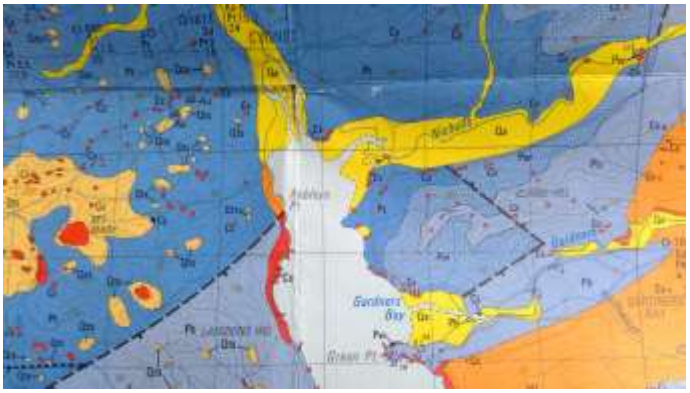
Olivia Wilson

Olivia Wilson has been awarded the University Medal at the University of Tasmania for her stellar results in her Bachelor of Science (Honours) degree. Fewer than 1% of graduates, and ordinarily only one graduate per program or major, will receive a medal in any year. Olivia commenced her degree in 2018 and became inspired to do Earth Sciences in first year. She received High Distinctions (80%+) for all the units throughout her degree. She completed her Honours degree in 2021.

Field Trip Autumn
Saturday, 30th April 2021

Members are invited to participate in the autumn field trip for 2022. We are heading south to Cygnet to view the varied geology and mining history of the area with the AIG. The area is rich in gold and coal mines, fossils and more!

Put the date in your diary.
More details and how to register in the next few newsletters and the website.



xtract from Kingborough 1:50000 Geological Map Geological Survey of Tasmania

Photo of the foreshore south of Cygnet (from AESC2021 virtual field trips https://www.gsatasmania.org/

Training in communications

Take advantage of the offer to GSA members-only to Geologize's critically acclaimed course Practical Geocommunication for 2022 for free! Geologize is a global leader in providing training to geoscientists who wish to communicate more effectively with their audience.
Geologize teaches geoscientists to bring the public to a greater understanding and appreciation of our planet through effective and powerful communication.
When you complete ***Practical Geocommunication***, you will receive an accredited CPD-valid certificate.

"Passion. Education. Sustainability. We believe that if people understand how the planet works, they will appreciate and care about it more. Geologize seeks to create and facilitate the creation of tangible and emotional connections between the general public and the world in which they live." Haydon Mort, Geologize.

Contact the GSA: info@gsa.org.au to get your code to this GSA-funded initiative (see flyer at the end of the Newsletter)

Renew your GSA Membership for 2022

Renew your membership here

Any queries about your membership contact Tim Holland at GSA tim.holland@gsa.org.au or our local membership officer Rebecca Carey (Rebecca.Carey@utas.edu.au)

STUDENTS

Welcome to University for 2022

Welcome BBQ extended to all students on the 3rd of March from 5 PM prior to our meeting commencing at 6 PM. Come along and meet members and other students across year levels, Masters and PhD students.

Meet our student representative Acacia Clark
Acacia is a PhD student now and has also been an Honours student at University of Tasmania. She will be at the BBQ so come and say hello

"Hello! I'm Acacia, the GSA TAS Division Student Rep. If you are interested in joining the GSA or have any questions about the events the GSA runs here in Tassie feel free to send me an email or come along to one of the monthly talks and chat to me in person." Acacia.Clark@utas.edu.au

Second and third year undergraduate and honours students we hope you had a great time on your field trips to western and eastern Tasmania.

Michael Roach instructing at Pepper Hill on the east coast excursion. What is he talking about here? Can you remember? (Photo K. Orth)

To help you get to grips with your field trip and those assignments now due in first semester you need that touchstone of geology in Tasmania 'The Geological Evolution of Tasmania'

Undergraduate Student Members
Special price on the
Geological Evolution of Tasmania!

Become a GSA Member and you can obtain 'The Geological Evolution of Tasmania' for $75 including GST.

Students Join Here

Once you are complete your membership please contact Caroline Mordant for your special price book. See details below

GSA membership has many benefits. Here are some comments from Olivia Wilson, who completed her Honours in 2021 and is now employed by Entura in Hobart. She was awarded $1000 from the GSA Endowment Fund for her Honour's work in 2020 and even managed to get out in the field to spend it!

'Being a student member of the Geological Society of Australia enriched my experience of studying geology. Especially important to me were the opportunities to make connections and learn about the research of other society members. As a student, it is also invaluable to have an environment in which you can interact with geoscientists from all career stages – hearing their experiences allows you to develop your own career aspirations. GSA membership also demonstrates that you have a level of passion and commitment to your field beyond the compulsory courses in your degree, helping your resume stand out as you transition to professional life.'

Olivia Wilson (supplied by O. Wilson)

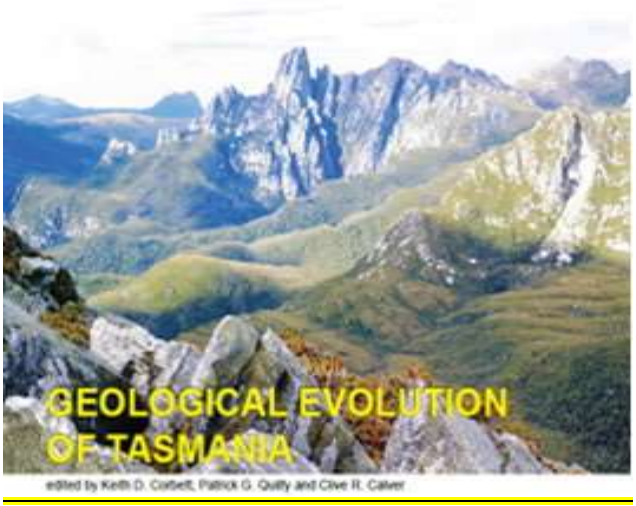
Endowment Fund
THE GEOLOGICAL SOCIETY OF AUSTRALIA

We hope that you have taken the opportunity to apply for the $1000 grants available for at least one Honours or Masters students in Tasmania in 2022 and the one national grant up to $5000 available for PhD students.

You can become a member here https://www.gsa.org.au/

Remember it's Time to Renew you GSA Membership

Any queries about your membership contact our membership officer Rebecca Carey (Rebecca.Carey@utas.edu.au).



The flagship publication of the Tasmanian Division of the GSA, 'The Geological Evolution of Tasmania' (Special Publication 24 of the GSA) is available for ordering. All details are available on a specific part of the Utas CODES web site: http://www.utas.edu.au/__data/assets/pdf_file/0003/55313/Flyer_Order.pdf

Copies of the book can be obtained personally from Caroline Mordant (publications@CODES.utas.edu.au or phone on +61 3 6226 7537.

Members Price is A$90 + GST + postage where appropriate. Undergraduate student price is $75. Postage can be avoided by buying in person from Caroline Mordant in Earth Sciences (University of Tasmania). The book is also available at Fullers Bookshop and at TMAG in Hobart, and in the Devonport Bookshop, Devonport. Prices at these sites may vary from GSA prices, and the member price is not available at these sites either.

Other Meetings

10th of March AusIMM Womens Day Luncheon in Burnie
For more information here:

Break the Bias Panel

19th and 20th of March Hobart Gem, Mineral and Fossil show (see flyer at the end of the newsletter)

26th and 27th of March Devonport Jewellery, Gem and Mineral Fair (see flyer at the end of the newsletter)

June day TBA One day online AIG Workshop 'The Project Geologists Toolkit' For more information contact Jane Capp
jane@omipl.com.au

Final Words

From Noel Kemp

SCIENTISTS say that a 10km wide crater is the site of a meteor strike that wiped out the dinosaurs. Well I simply don't believe that all the dinosaurs on earth were huddled together in this one crater when it struck. These so called scientists should really think through their theories before making such outlandish claims.

Charles Turner, e-mail

GSA Tasmania Division Committee

Chair: Dr Karin Orth
Vice Chair: Dr Matthew Ferguson
Secretary: Grace Cumming
Grace.Cumming@stategrowth.tas.gov.au
Treasurer: Dr Andrew McNeill

Committee Members:
Sheree Armistead
Rebecca Carey (Membership)
Acacia Clark (Student Rep)
Jacqueline Halpin
Claire Kain (Geotourism)
Peter McGoldrick
Sebastien Meffre
Indrani Mukherjee (IED)
Phil Sansom (Education)

Geological Society of Australia website:

www.gsa.org

and our own website

http://www.gsatasmania.org

Any news, announcements or interesting photographs of Tasmanian Geology you would like to include in the next Newsletter, please send it through via email to karin.orth@utas.edu.au prior to the 22nd of March 2022

GEOLOGIZE

NOW FREE FOR GSA MEMBERS

Do you want to strengthen your geoscience communication skills? Maybe you want to educate a non-specialist audience about why geoscience is important.

If you do, take advantage of the GSA members-only license to Geologize's critically acclaimed course ***Practical Geocommunication*** *for 2022 for* ***FREE!***

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GEOLOGICAL SOCIETY OF AUSTRALIA Incorporated

GEOLOGIZE

The Hobart Gem, Mineral & Fossil Show 2022

Tasmania's Hidden Treasures

Saturday 19th March 9am – 5pm

&

Sunday 20th March 9am – 4pm

Grandstand Hall,
Hobart Showground,
Glenorchy

Gemstones, Minerals, Fossils, Crystals, Jewellery and Books for Sale! Along with Displays, Children's Activities, Raffles and Demonstrations.

Admission: Adults $5, Children $1

Presented by

The Lapidary Club of Tasmania Inc

2022 Jewellery, Gem & Mineral Fair

East Devonport School Gymnasium

Saturday & Sunday

26th & 27th March

9am - 4 pm

Trade Tables ...
Jewellery, Gems,
Minerals & Fossils
Children's Activities
Lapidary Equipment

Adult -$5.00

Under 16 -Free

For more information contact -
Collene Donaghy 0407 165 005