

New Zealand Starlight Conference report

Lake Tekapo, 20-23 October 2024

Summary

The New Zealand Starlight Conference took place from 20 to 23 October in Lake Tekapo, Mackenzie District. The venues were the Dark Sky Project for the opening and reception on Sunday evening, 20 October, and the Tekapo Community Hall for three full days of the conference.

This was a multidisciplinary international conference on light pollution and the protection of dark skies jointly hosted by the Aoraki Mackenzie International Dark Sky Reserve board and by the Royal Astronomical Society of New Zealand. The number of registrations received was 130 coming from 17 different countries. Thirty-eight participants were from overseas. The programme listed 58 talks and 11 posters. All but one of the talks were presented as planned; five were offered remotely by pre-recorded talks or by Zoom.

The Starlight Conference successfully brought together the dark-sky movement from many communities in New Zealand, with the result that there was an increased recognition of the potential benefits of New Zealand astrotourism in the Mackenzie and elsewhere. The increased benefits coming from astrotourism in New Zealand should follow in the near future.

1. Aim of the Starlight Conference

The NZ Starlight Conference was a highly multidisciplinary international meeting, discussing the impact of light pollution on the environment, human health and astronomy. The conference opened in the Dark Sky Project on the evening of Sunday 20 October, and then moved to the Tekapo Community Hall for the following three days, 21-23 October.

The conference discussed the latest lighting technology and how to mitigate the harmful effects of light pollution, yet preserve safety for those out at night.

The Starlight Conference promoted the latest developments in New Zealand's Dark Sky Network and the legislation needed for us to become a Dark Sky Nation. The promotion of astrotourism under dark skies was a major theme of the Starlight Conference. Participants learnt why New Zealand is known around the world as a leading nation for astrotourism, with the Mackenzie District being at the forefront of this movement.

The Starlight Conference brought together astronomers, astrotourism operators, lighting specialists, environmentalists, lawyers, medical professionals and politicians to share information and the latest developments relating to light pollution and its impact on the night sky, the environment, human health and astrotourism.

2. Organizing committee

An organizing committee was set up comprising eight people as follows:

- John Hearnshaw Aoraki Mackenzie International Dark Sky Reserve board; chair of Starlight Conference Organizing Committee; Christchurch
- Nalayini Davies Royal Astronomical Society of New Zealand; DarkSky International; Auckland
- Margaret Austin Starlight Conference fund-raising; Christchurch
- Steve Butler Chair, Aoraki Mackenzie International Dark Sky Reserve board; Royal Astronomical Society of NZ, Dark Skies Group; Invercargill
- Bruce Mincham Aoraki Mackenzie International Dark Sky Reserve board; Starlight Conference treasurer; Twizel
- Karen Pollard University of Canterbury, director Mt John Observatory; Christchurch
- Adrien Vilquin Barrajon formerly Dark Sky Project, Lake Tekapo
- Ellen Cieraad Nelson Marlborough Institute of Technology; Department of Conservation, Nelson

3. Host organizations

The New Zealand Starlight Conference was hosted jointly by the Aoraki Mackenzie International Dark Sky Reserve board (AMIDSR) and by the Royal Astronomical Society of New Zealand (RASNZ). DarkSky International, based in Tucson Arizona USA was a supporting organization that promoted the conference to its members world-wide.

4. Participation

The number of registrations received was 130 coming from 17 different countries. Thirty-eight participants were from overseas. The countries represented were as follows: New Zealand, Australia, Canada, USA, China, Sweden, Belgium, Netherlands, Japan, Portugal, Fiji, Tanzania, Taiwan, Uruguay, South Africa, United Kingdom (by video link) and Iran (by video link).

5. Venues

The venues were the Dark Sky Project for the opening and reception on Sunday evening, 20 October, and the Tekapo Community Hall for three full days of the conference. Both were excellent venues for the conference. It is unusual for an international conference to be held outside of New Zealand's main centres. But Lake Tekapo being at the heart of Aotearoa's astrotourism industry and very close to the University of Canterbury's Mt John Observatory, made Tekapo an ideal location for this event. The beautiful scenery and fine sunny weather during the conference were added bonuses appreciated by all.



Group photo of Starlight Conference participants at the Tekapo Community Hall

6. Keynote invited speakers

Twelve keynote invited speakers were invited to give keynote addresses to the conference, covering many different areas of expertise and coming from many corners of the world. The invited speakers were:

- Ruskin Hartley Chief Executive Officer,
DarkSky International Tucson AZ
USA
- Susan Mander Lighting technology, Massey
University, Albany Auckland, NZ
- Joan Marie Galat Author and freelance writer Edmonton,
Alberta, Canada
- Yana Yakushina Space lawyer University of
Ghent, Belgium
- Annika Jägerbrand Environmental biologist Gävle University,
Gävle, Sweden
- Johan Eklöf Bat scientist Gothenburg,
Sweden
- Bridgette Farnworth Environmental biologist Nelson, NZ

- Steve Chadwick Astrophotographer Massey University
Palmerston North,
NZ
- Mario Motta Cardiologist, American Medical Assoc. Gloucester, MA,
USA
- Philippa Gander Chronobiologist Massey University
Wellington, NZ
- Connie Walker Astronomer, NOIRLab Tucson, AZ, USA
- Carol Redford Astrotourism operator Perth, WA,
Australia

7. Opening ceremony and reception

The Organizing Committee is grateful to Victoria Campbell, general manager of the Dark Sky Project, for providing the venue for the opening of the conference from 6:00 pm to 7:30 pm on Sunday 20 October. Te Wera King and his wife Wendy from te Rūnanga o Arowhenua provided a Māori welcome, or mihi whakatau, and there were short welcoming speeches from the following:

- Victoria Campbell, Dark Sky Project
- Prof John Hearnshaw, chair of the Starlight Conference Organizing Committee
- Mayor Anne Munro, Mayor of Mackenzie District
- Duncan Hall, President of the Royal Astronomical Society of New Zealand
- Steve Butler, chair of the Aoraki Mackenzie International Dark Sky Reserve board.

After the speeches, the participants and about a dozen accompanying guests enjoyed drinks and canapés in the Dark Sky Project.

8. Catering

Catering for the Starlight Conference, comprising morning and afternoon teas/coffees and lunches on the three conference days was provided by Lovely Grub Location Catering of Little Akaloa on Banks Peninsula (www.lovelygrub.co.nz). Their general manager, Gavin Marshall and his attendant catering crew, brought a mobile kitchen to Tekapo and served excellent hot meals for three days.

9. Student volunteers

Five astronomy graduate students from the University of Canterbury and one astronomy postdoctoral fellow were appointed as Starlight Conference volunteers. They drove shuttle vehicles from Christchurch to Lake Tekapo and back for some of the participants (mainly those from overseas), they handled the conference computer and projector, including all the PowerPoint files, they set up the audio equipment and dealt with microphones, and they helped set up the furniture in the Community Hall and tidy up after the conference. Many thanks go to them for their outstanding service.

The six volunteers were:

- Morag Hills
- Shreyas Tiruvaskar
- Mona Saw
- Jack Patterson
- Tait Keller
- Dr Yixiao Zhou

10. Mt John Observatory tour

A visit to Mt John Observatory from the Dark Sky Project was available to participants on Sunday afternoon from 2 pm to 4:30 pm. A shuttle service was provided using UC shuttle vans and a Dark Sky project bus. Tours were made of the 1-m McLellan telescope and of the 1.8-m MOA telescope. The AstroCafé on Mt John was open during this time.

11. Talks and posters offered

A very busy programme of talks was provided over three days of the Starlight Conference. The programme had 58 talks and all of these were given except for one, when regrettably New Zealand author Annette Lees (Waitakere, Auckland) had to cancel her participation to attend a family funeral. All the other 57 talks went ahead as scheduled, ranging in length from 30 minutes for the 12 invited speakers to 20 or 15 minutes for most of the contributed talks. Five of the talks were with pre-recorded PowerPoint files with embedded audio, one, from Minister of Tourism the Hon Matt Doocey, was using Zoom.

Eleven posters were also displayed at the conference (A0 or A1 format).

12. Sponsorship

The Starlight Conference was well supported by sponsorship, either in cash or in kind, and the Organizing Committee is very grateful for the excellent level of support. More than half the cost of running the conference came from sponsorship funding, the remainder came from registration fees.

The following were major sponsors:

- Mackenzie Regional Event Fund, Mackenzie District Council (administered by Mackenzie Tourism)
- Embassy of the United States of America, Wellington
- Lottery Minister's Discretionary Fund
- Christchurch International Airport (the 'Gateway to the Stars')

- The School of Physical and Chemical Sciences, University of Canterbury, Christchurch
- The Tindall Foundation
- The Maurice Carter Charitable Trust
- Forsyth Barr Ltd, Christchurch
- The Isaac Conservation and Wildlife Trust, Christchurch
- DarkSky International, Tucson, AZ, USA
- Meadowvale Ltd
- Turner Media
- The Fairlie Bakehouse (courtesy of Franz Lieber)

There were also a number of private individuals who donated generously to the Starlight Conference finances. The Organizing Committee is grateful to the Hon Margaret Austin for raising much of the sponsorship funding.

13. Starlight Conference website

The Starlight Conference website (<https://starlightconference.org.nz>) was designed and implemented by Trace Bradshaw of Turner Media. She always helped make numerous changes over the course of 12 months prior to the conference, updating the site as changes became necessary.

The pdf files of the Starlight Conference Programme Book and the conference Abstracts Book can be downloaded from the website.

Ultimately, it is planned to place the PowerPoint files of all speakers and also video files of their talks on the website, in lieu of printed published proceedings. We are grateful to Robert Dick from Ottawa, Canada, for recording video files of all speakers.

14. Welcoming dinner for keynote speakers and the Starlight Conference banquet

On Sunday 20 October, the Organizing Committee welcomed our keynote invited speakers to a special dinner in the Mackenzie Room at Peppers Bluewater Resort, after the conclusion of the reception at the Dark Sky Project. This was an opportunity for the OC members to meet and greet the keynote speakers.

On Tuesday evening, 22 October, the Starlight Conference banquet was held at the same venue at Peppers Bluewater Resort. Seventy-five participants purchased tickets (\$110 including wine) to go to the banquet. Marie Connolly gave an entertaining after-dinner speech about her novel *Dark Sky* and recited a specially written poem, *Ode to the Protection of the Night*.

15. Budget

The Starlight Conference budget for 125 participants (we had 130 participants including 5 student volunteers who did not pay a registration fee) was \$110,425. About two thirds of this came from sponsorship funding and the balance from registrations.

16. Book stall

A book stall for the display and sale of books, mainly related to dark skies and astronomy, was organized in the Community Hall. Sixteen different titles were for sale and just under \$3000 of sales were made by cash or eftpos card on the three conference days. The Organizing Committee thanks Alan Gilmore, Marie Connolly and Vickie Hearnshaw for managing the book stall. Several of the books were authored by our keynote speakers (Johan Eklöf, Joan Marie Galat, Philippa Gander), one was the novel *Dark Sky* (a murder mystery set at Mt John by Marie Connolly, who was also the after-dinner speaker at the Starlight Conference banquet), and other titles were by Alan Gilmore and John Hearnshaw.

17. Conclusion and outcomes

We had a very successful Starlight Conference in an excellent venue and under warm sunny skies. The Dark Sky Network in New Zealand was re-energized and motivated to continue their cause to have New Zealand become a 'Dark Sky Nation' and the proposal to finally achieve some national legislation in New Zealand to protect dark skies was brought a step closer,

The Starlight Conference had a strong international flavor, with eight keynote speakers being overseas experts who were brought to New Zealand to speak at the conference, and a total of 38 international participants, many of whom contribute talks or posters.

Astrotourism in New Zealand received a boost from the many representatives of New Zealand astrotourism companies who participated. The economic benefits of the conference to the Mackenzie region were considerable, as the great majority of the participants travelled to Tekapo, stayed in Tekapo accommodation and dined in Tekapo restaurants. The expenditure of conference funds of over \$100,000 would have been more than doubled by the expenditure for accommodation and dining in Tekapo by the participants, thereby giving an economic boost to the Mackenzie region as a whole.

18. Feedback from participants

Some early feedback from participants has been received, and probably there will be more. Here is a brief sample:

- Just a quick note to say many thanks for the time and effort you and your team put into organising the conference this week. It's a lot of work that mostly goes unobserved by those attending but obviously absolutely vital for the conference's success. Tekapo is a great venue and it was good to have the pre-conference visits up on the mountain, even for many of us who have been there before.

I thoroughly enjoyed it and learnt a lot as I think did most other participants. It's always a good opportunity to catch up with what others in this space are doing and it was nice to have a bit of an international perspective too. Also a good chance to interact with the Dark Sky International team in person rather than on Zoom for a change.

I thought it was also very useful also to have that link to MP Matt Doocey... hopefully his good words will turn into action in the future, but he did seem to have a pretty good knowledge of what we're all on about which is a great first start.

- I wanted to thank you all for all of your amazing hard work in putting together such a fantastic conference. We came home so inspired by the speakers we heard and encouraged in having met the leads from the other Dark Sky projects in NZ and elsewhere. I don't think we had realized how international the conference would be. So many of our favourite talks were from people from places in the world where they have so much of a harder time with either the geopolitical situation or the pollution challenges, and it was just inspiring to see them doing this work. We made some great connections both at home and overseas and hope to be able to help out some of the other emerging projects, too.

We know it's a huge endeavour to take on organizing a conference of that scale and we just wanted to say a big thank you to you all (and the Canterbury students who were helping out) as we so appreciated getting to be a part of the wider Dark Sky community through the conference.

- I had the most incredible time thank you! I'm not sure what I expected but this delivered on more levels that I could possibly have imagined. The range of speakers was superb, everyone was interesting. It was jam packed which made it pretty tiring, but everyone's time was maximised. Thank you so much to yourself and everyone else involved in making it happen.

I'm inspired and energised

John Hearnshaw

Chair, Starlight Conference organizing Committee

27 October 2024