

Report on the third Aoraki Mackenzie Starlight Festival

Aoraki/Mt Cook, 13 – 15 October 2017

The third Starlight Festival organized by the Aoraki Mackenzie International Dark Sky Reserve Board took place over the weekend 13 to 15 October 2017, with the Hermitage Hotel at Aoraki/Mt Cook being the principal venue. Additional venues were the University of Canterbury's Mt John Observatory at Lake Tekapo and the Pukaki Observatory at the Mt Cook Lakeside Resort.

The Starlight Festival aimed to bring the work of the Aoraki Mackenzie International Dark Sky Reserve to the attention of the public, in particular the need to combat light pollution and to maintain dark skies. This is important for human health, for the environment as well as for astronomers and star-gazing astro-tourists. Light pollution also wastes enormous amounts of money by producing wasted light that goes straight up into the sky.

The Starlight Festival comprised 30 events over three days. Three prestigious international keynote speakers came to New Zealand for the Festival. They were Dr Natalie Batalha from NASA, a renowned astronomer and space scientist who has led a team for the Kepler satellite to discover over two thousand five hundred exoplanets orbiting stars other than the Sun. Natalie Batalha was named as one of the 100 most influential people on Earth by Time Magazine in April 2017.



Natalie Batalha lecturing on exoplanets at the Starlight Festival

The other keynote speakers were Kevin Govender from Cape Town and Sze-leung Cheung from Tokyo. Kevin is director of the Office of Astronomy for Development of the International Astronomical Union. He is a dynamic speaker and experienced on how astronomy can inspire young people to be interested in science and STEM subjects in general. Sze-leung is director of the Office of Astronomy Outreach, also of the International Astronomical Union. He is an expert on light pollution issues and the threat posed to the environment and the night sky by blue-rich light-emitting diode (LED) lights now favoured for many street lights.



International keynote speakers at the Starlight Festival: left to right Sze-leung Cheung (IAU, Tokyo), Natalie Batalha (NASA Ames, California), John Hearnshaw and Kevin Govender (IAU, Cape Town)

The opening of the Starlight Festival on Friday evening was accompanied by Te Wera King's 23-person kapa haka group who came all the way from Waimate for a performance of waiata and a haka. Te Wera is from the Arowhenua runanga in Temuka. The opening also featured four short speeches by Mayor Graham Smith of Mackenzie District, the Hon. Nicky Wagner, Associate Minister of Tourism and of Conservation in the National government, by Professor Mike Reid from the University of Canterbury School of Physical and Chemical Sciences and by Kirsty Phillips, the Manager of Marketing and Communications at Ngai Tahu Tourism. All but Minister Wagner were representing major sponsors of the Festival.

A major theme of the Starlight Festival was astrophotography, by highlighting the work of nine of New Zealand's leading astro-photographers. Their digital images were displayed at three venues at the Hermitage Hotel; six of the nine attended the Festival in person, and four (Mark Gee from Wellington, Dr Steve Chadwick from Palmerston North, Fraser Gunn

from Tekapo and Fairlie and Paul Wilson from Christchurch) made presentations to describe their work and techniques. Images and time-lapse movies of incredible beauty displaying the starry night sky, and also other celestial bodies (Sun, Moon and aurorae) were shown to the delight of the Festival participants.

Two workshops were held during the Festival. One was presented by Mark Gee on the techniques of astro-photography. The other was a workshop on constructing kitset Galileoscope telescopes, which was presented by three instructors from *Science Alive!* in Christchurch. The workshops were held in the Chamois Bar of Mt Cook Lodge, near the Hermitage.



The Galileoscope workshop in the Chamois Bar at Mt Cook Lodge; over 100 participants assembled kitset Galileoscopes under the direction of *Science Alive!* staff

Stargazing at night was an important part of the Starlight Festival, and we were fortunate to have a clear starry night on Friday 13 October. The stargazing session took place at the recently opened Mt Cook Observatory belonging to Big Sky Stargazing at the Hermitage. More than one hundred people took part, and we are grateful to six members of the Canterbury Astronomical Society who came with their portable telescopes to show the stars, star clusters, nebulae and galaxies to Festival participants. On Saturday we also scheduled stargazing, but it did not clear until about 11 pm, resulting in only half the numbers of the previous evening. There was also day-time observing, using two solar telescopes with H-alpha filters operated by University of Canterbury students to show the public the Sun's chromospheric structures.



Stargazing at the Mt Cook Observatory, Friday 13 October



University of Canterbury doctoral student Dylan Paterson demonstrates one of the solar telescopes outside the Hillary Alpine Centre at the Hermitage, Mt Cook

The Hermitage has a digital planetarium in the Hillary Alpine Centre and this was the venue for two planetarium shows on Friday and Saturday afternoons, the Saturday show being assisted by Oana Jones from the Otago Museum and Planetarium.

Light pollution and how to combat it was another theme of the Starlight Festival. A poster display was mounted by Steve Butler from Invercargill on light pollution, and on the Friday afternoon a documentary video 'The City Dark' produced by Ian Cheney in New York was shown. These two events were complemented by the lecture on light pollution and LEDs by Sze-leung Cheung from the IAU Office for Astronomy Outreach in Tokyo.

We were delighted that a team from Great Barrier Island made the long trip to Mt Cook to give a presentation on the newly accredited Aotea Dark Sky Sanctuary. This is the second dark sky place in New Zealand recognized by the International Dark Sky Association after the Aoraki Mackenzie International Dark Sky Reserve. The presentation was made by Izzy Fordham, and Gendie and Richard Somerville-Ryan.

On Sunday afternoon, there was an open day at the University of Canterbury's Mt John Observatory at Tekapo. About 100 people participated and all the telescopes were open to the public. Earth and Sky also participated by arranging for children's activities in the Mt John astrograph building, thanks to the support of Kristian Wilson.

On Sunday evening, Pukaki Observatory at the Mt Cook Lakeside Retreat hosted an event with astro-photographer Mark Gee. A select eight people took part in this event, which featured stargazing using the observatory's 6-inch refractor with Mark Gee as guide and accompanied by wine and nibbles.



The open day at Mt John on Sunday afternoon: University of Canterbury staff and students (in red T-shirts) were Starlight festival assistants for the weekend



The final event at the Starlight Festival was an evening at Pukaki Observatory with astro-photographer Mark Gee (third from left)

We estimate about 200 people participated in various events at the 2017 Starlight Festival. Natalie Batalha's lecture on Saturday evening completely filled the planetarium theatre and had about 140 people. The Galileoscope and astrophotography workshops filled the Chamois Bar with about 120 participants each. Venues were close to full capacity for most other events.

We are grateful to all our sponsors who supported the Starlight Festival. Major sponsors were the University of Canterbury, Ngai Tahu Tourism, the Mackenzie District Council, Trust Aoraki, the Mid and South Canterbury Community Trust and the Mt Cook Lakeside Retreat. Additional sponsorship was provided by Tekapo Stargazing, Lakestone Lodge, Skyscape Twizel and Skyline Queenstown. Sponsorship in kind came from Science Alive!, BigSky Stargazing, the Canterbury Astronomical Society and the New Zealand Travel Magazine. We are also grateful to the Hermitage Hotel for providing the venues for most of the Festival events.

It is likely that a fourth Aoraki Mackenzie Starlight Festival will be held in Tekapo in October 2019.

John Hearnshaw

Chair, Aoraki Mackenzie International Dark Sky Reserve Board

21 October 2017