



INTERNATIONAL DARK-SKY ASSOCIATION

3223 N First Ave - Tucson Arizona 85719 - 520-293-3198 - www.darksky.org

TO PRESERVE AND PROTECT THE NIGHTTIME ENVIRONMENT AND OUR HERITAGE OF DARK SKIES THROUGH
QUALITY OUTDOOR LIGHTING



**International Dark-Sky Association
Dark Sky Places Program Annual Report**

DECEMBER 2013

Aoraki Mackenzie International Dark Sky Reserve

Supplementary Report

Aoraki Mackenzie International Dark Sky Reserve - 2013

The first full year of the Aoraki Mackenzie International Dark Sky Reserve in the South Island of New Zealand has been one of development and celebration. Two management board meetings were held.

Growing visitor numbers, media coverage, and an increase in awareness of the beauty of the natural night sky has generated much interest both within New Zealand and internationally.

The AMISDR has received strong support from the University of Canterbury both for the Reserve itself and the Starlight Festival held in October. Other organisations have also actively promoted the area.

<http://www.christchurchairport.co.nz/en/newsletters/keeping-an-eye-on-the-stars/>

<http://www.christchurchnz.com/what-to-see-and-do/nature-wildlife-and-eco-tours/>

<http://www.tourismnewzealand.com/markets-and-stats/japan/marketing-activity/2013/05/tnz-takes-to-twitter-in-japan/>

Astronomy tourism and astrophotography businesses have promoted and benefited from the reserve. Maki Yanagimachi of Earth and Sky Ltd https://www.facebook.com/earthandskynz/photos_albums and Fraser Gunn of Fraser Gunn Photography <http://www.laketekapo.cc/>, both based in the Reserve have produced high class images and animations which have been shared worldwide through Social Media.

The following pages include:

- a report on the first Starlight Festival from the University of Canterbury Physics and Astronomy Department's *Weekly Newsletter Vol 30, No 45, Friday 25 October 2013*.
- Web page information from Earth and Sky Ltd, Tekapo and Big Sky Stargazing of Mt Cook Village
- Photos and information from the Starlight Festival 2013



Aoraki Mackenzie Starlight Festival, 11-13 October, Lake Tekapo (John Hearnshaw)

The Aoraki Mackenzie Starlight Festival took place in Tekapo from Friday evening to Sunday afternoon, 11-13 October. It was a public outreach event promoting astronomy, dark skies, space and the environment put on by the Aoraki Mackenzie International Dark Sky Reserve Board (which I chair) in partnership with the University of Canterbury (in particular our Department and with help from the UC Foundation). The Festival celebrated the creation of our International Dark Sky Reserve, recognized by the International Dark Sky Association, in June last year.

The opening ceremony took place in the Godley Hotel on the Friday evening, with a powhiri, a talk on Maori astronomy by Pauline Harris, the opening of a photographic and art exhibition (curated by local artist Elizabeth Jenkins) with seven mainly local (Tekapo) exhibitors showing Mackenzie country landscapes and starscapes, and a viewing of the New Zealand documentary *Venus: a Quest* by Shirley and Roger Horrocks.



Steve Maddox (right, back to camera) and Loretta Dunne (left, behind observer) show festival participants the Sun through an H-alpha filter on the solar telescopes at the Tekapo Community Hall.

Next day included viewing the Sun with solar telescopes outside the Community Hall (coordinated by Steve Maddox and Loretta Dunne), a talk on human spaceflight by NASA astronaut Marsha Ivins (this packed out the Community Hall to standing room only), the presentation of certificates and Galileoscopes to the ten winners of our Margaret Mahy Starlight Essay/Poetry competition by Marsha Ivins and Genesis CEO, Albert Brantley (who had sponsored the NZ-wide schools' competition), a Galileoscope workshop at which 120 excited young people built Galileoscopes under the guidance of five tutors from Science Alive! and UC's outreach coordinator, Joan Gladwyn, an open-air concert by the 55-strong Christchurch Youth Orchestra playing popular pieces by Holst, Strauss, Dvořák and others, a documentary on light pollution and stargazing (*the City Dark*, directed by Ian Cheney) and a Starlight barbecue, hosted by Earth and Sky and the Canterbury Astronomical Society on Cowan's Hill. Although there was some cloud early evening, most of the

day and the night were clear, so all events went well. We also had Galileoscope viewing, a night stargazing visit to Mt John and telescopes at Cowan's Hill Observatory, so most people who wanted to were able to see planets, stars and nebulae through small telescopes. I am grateful to Geoffrey



Festival participants listened to a talk by NASA astronaut Marsha Ivins (on stage at left) on human spaceflight, past, present and future.

Lorigan at the Institute of Strategic Leadership in Auckland for donating all the Galileoscopes.

On Sunday, Karen Masters (University of Portsmouth, UK), who was in New Zealand as Beatrice Hill Tinsley fellow for 2013, gave a talk at the Festival on *the Zoo of Galaxies*; like Marsha Ivins the day before, she had 200 or so

people in the Hall completely

enthralled by her public talk. Sunday afternoon was a chance for the Department to show off our research, telescopes and instrumentation in astronomy at Mt John. A large number of people came up for our open day at the observatory and the chance to talk to astronomers, including Karen Pollard, Alan Gilmore and Pam Kilmartin. Unfortunately the strong NW winds later in the afternoon curtailed this event somewhat, but most still had a good time.

Many people contributed to the success of the Festival which probably attracted over 300 people to Tekapo and contributed significantly to the local economy. I especially wish to thank Sharlene for her tireless efforts on the website, on-line ticket sales and answering queries by email and on the phone for at least six months before the event. Margaret Austin (former cabinet minister and ardent Dark Sky Reserve supporter on our Reserve Board) helped raise some \$60,000 (about 85 per cent of our Festival budget), and a band of ten of our students helped with a score of jobs on site – thanks especially to Emily Brunsdon who looked after door sales, and to Christoph Bergmann who drove one of three minibuses (Karen Pollard and I drove the other two).



More than 120 young people assembled Galileoscopes at the Festival's Galileoscope workshop under the guidance of instructors from Science Alive! and UC's Joan Gladwyn.

Overall the Festival can be judged to have been a considerable success; it showcased UC observational astronomy and thanks to Karen Pollard, who arranged for literature on our astronomy courses and research to be distributed, it was a great opportunity, as it helped raise the public profile of astronomy at Canterbury. Finally, thanks go to Mike Reid for coming to the Festival and for the sponsorship of the Department.

Apart from Genesis Energy and the Institute of Strategic Leadership, other major sponsors were the Christchurch Press (for the travel of Marsha Ivins from Texas), Christchurch International Airport Ltd, the Mid and South Canterbury Community Trust, Christchurch and Canterbury Tourism, Alpine Energy Ltd, Fulton Hogan Ltd (who also provided signs and banners), the Mackenzie District Council, the NZ National Commission for UNESCO (who supported the Canterbury Youth Orchestra), Earth and Sky Ltd, Parkbrae Estate, Tekapo Springs, Alpine Recreation Ltd, Photo and Video International (Merivale). The last named donated an astronomical telescope to the Tekapo School, which was a nice way the Festival could give support to the local community and thank the school for the loan of their public address system.

Since the Festival, my inbox has been filled up with nice messages from enthusiastic participants, including one from PVC Paul Fleming. It's these messages which make the big organizational effort seem worthwhile and rewarding. Hopefully the whole event will have a positive spin-off for the Department in the future.



Margaret Austin introduces the Christchurch Youth Orchestra at the Tekapo Springs ice rink, where 193 people heard the open air concert 'Symphony under the Stars' with an astro-theme. It was conducted by Luke Di Somma from the Christchurch School of Musi



Operations report from Earth and Sky Limited, Tekapo

"We are gearing up for an extra busy summer with our Astro-tourism business based at the Cowan's and Mt John University observatories at Lake Tekapo. The rise in tourist numbers for us is a direct result of the extra international media exposure from becoming an International Dark Sky Reserve in 2012.

The Asian markets have lifted considerably in the last 12 months and the Lake Tekapo tourism providers have made a concerted effort to capitalize on the new status known as the 'Aoraki Mackenzie International Dark Sky Reserve', endorsed by the IDA.

With direct support from other national organizations such as Tourism New Zealand, Christchurch & Canterbury Tourism and the Christchurch International Airport, who have now all used the 'night sky' as a tourist draw-card and indirectly giving another angle to support the 100% PURE marketing campaign to include 100% NZ dark night skies. This wider promotion, sees that not just the region of the Mackenzie District benefit's from becoming an International Dark Sky Reserve but rather the South Island and New Zealand in general becomes the beneficiary for the increased tourist numbers."

Margaret Munro

General Manager, Earth and Sky Limited, 3-Dec-2013

Earth and Sky Education Outreach

Earth and Sky staff were successful in receiving funding from a Genesis (Energy Company) grant scheme for a trial instrument to help local Schools monitor and record the Darkness of our Night Sky.

Staff plan to develop an extensive network of sky monitors throughout the Dark Sky Reserve, with Tekapo serving as the radiant. "There is awesome educational potential tied up in dark sky conservation efforts, and we have yet to really fully harness this to inspire and engage our students. It's the young scholars/astronomers who will and really ought to be at the helm of the dark sky movement -- a child's curiosity and innocent questioning of established norms will move mountains, or in our case councils and communities. We've already ordered SQM-LE units (one compatible with USB and the other Ethernet) and with any luck we'll begin designing little sky monitoring stations. Our dream is to use Raspberry Pi units to drive and operate the SQM's and ultimately create kits which students can take home to set up. Earth and Sky astronomy educators look forward to helping all participating students collate the collected data and display results. Who knows what sort of traction this will gain, but we're looking forward to making great headway during the relatively quiet winter months."

Christopher Monson

Assistant Manager & Chief Astronomy Guide at Earth and Sky Ltd, 31- May-2013



Astronomy for Schools

Earth and Sky regularly caters to school groups by providing a wide range of interesting and informative contexts for students, offering an interactive and hands-on approach to their learning. With the best skies in the country, and the assistance of our Astronomy Guides, it's the ideal environment to explore the heavens above. In the daytime we provide unparalleled views of the Mackenzie Basin from the snow-clad mountains of the Southern Alps, including Aoraki Mt Cook, to the radiant turquoise waters of Lake Tekapo — but don't forget the telescopes!

You bring the enthusiastic students,
we enrich them by providing the opportunity of a lifetime!

Each school focuses on one of the programmes; this supports a student's experience by achieving learning outcomes appropriate to their needs. By visiting at different times (day and night) a number of unique opportunities are available. We offer three different options according to the amount of time you wish to have with us, and there is always the full experience of both night and day.

DECISION ONE: Firstly, teachers will decide which of the following programmes line up with their own Achievement Objectives. The three different programmes are:

"Our Solar System"
"Stars and Constellations"
"Earth and Beyond"

DECISION TWO: Next, choose which option best suits your schedule:

Option One	<u>Twilight Expedition</u> Beginning 45mins AFTER sunset (90mins) Includes a *Day-time Excursion* from 9am to 4pm (45mins)
Option Two	<u>Sun to Stars Voyage</u> Beginning 45mins BEFORE sunset (90mins)
Option Three	<u>Day-time Excursion</u> Available from 9am to 4pm, (45mins - note no evening visit)
Alternative Option	<u>International Secret Agent Mission</u> An evening visit, according to the conditions, on nights where the stars are hidden from view. (Flexible details.)

Due to seasonal changes in sunset, tour times will vary over the year.
For further information regarding your options, we will gladly discuss
which visit will maximise your experience with Earth and Sky.

PRICING: New Zealand Schools

	Day-time Excursion	Sun to Stars Voyage	Twilight Expedition (including *Day-time Excursion*)
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Primary	\$10	\$17	\$26
Intermediate	\$10	\$22	\$28
Secondary	\$10	\$25	\$30
Adults	\$20	\$40	\$49
Teachers	Free of charge	Free of charge	Free of charge

Prices are fixed for the year 2013.

- A "Day-time Excursion" will meet at the Mt. John car park. (The Mt. John road is limited to 22-seater buses.) Transport is available, additional charges will apply.
- Both evening visits ("Sun to Stars Voyage" and "Twilight Expedition") include transport to and from Mt. John from the Lake Tekapo Village.

It is extremely important that students wear adequate warm clothing for their visit. Most of the tour will be outside and at times Mt. John is subject to freezing conditions (especially due to wind chill) any time of the year.

All bookings need to be made 2 weeks prior to your visit in order to help reserve your chosen evening. We will endeavour to find an available evening during periods of increased bookings or if given short notice.

For further information and enquiries, or to reserve a place, please contact:

Kristian Wilson, Education Manager,

kristianwilson@earthandsky.co.nz

Or by phone, e-mail or in writing to the address at the bottom of this page.

"Access to knowledge, armed with education, is the key to allow the integration of science into our present culture, contributing to the advance of humankind. The dissemination of astronomy and the scientific and cultural values associated with the contemplation of the universe should be considered as basic contents to be included in educational activities in all areas, impossible to fulfil without a reasonably unpolluted sky and proper training of educators in these subjects."

From the La Palma Declaration

Earth & Sky Ltd., P.O. Box 112, Lake Tekapo 7945, New Zealand.

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THE
HERMITAGE

AORAKI MOUNT COOK
Motel Units to Luxury Accommodation

en > The Sir Edmund Hillary Alpine Centre > Big Sky Stargazing

Big Sky Stargazing

Mount Cook is far from the city lights and therefore has some of the darkest skies in New Zealand - perfect for viewing the night sky!

In June 2012 the *Aoraki* Mackenzie region, encompassing Mount Cook Village, was approved as one of only a few International Dark Sky Reserves (IDSR) worldwide. It is the worlds largest IDSR, and has achieved a gold rating, meaning the darkness of our night skies is almost unbeatable!

Begin with an introduction and orientation in the comfort of our Theatre Planetarium using a special live Digital Sky presentation highlighting unique features in our southern sky.

Our informative astronomy guides then take you on a short drive (transport provided) to our outdoor stargazing site. Use state-of-the-art telescopes, high powered binoculars and the naked eye to put your newly acquired knowledge into practise identifying and exploring different elements of the spectacular southern sky.

Adult	Child (4 -14 yrs)
\$60.00	\$30.00

All prices are in NZD and include GST (currently 15%)

Departures:

Big Sky Stargazing tours depart every clear evening. Exact departure times vary depending on the time of year and you will be advised of the applicable departure time when you check-in to the hotel.

Weather Conditions:

If the night sky is clouded over and guides are of the opinion that conditions are not satisfactory for operation of the tour then full refund will be provided. Alternatively you may proceed with the shorter planetarium component of the tour at a reduced price.

Important Info:

Due to uneven surfaces around the outdoor stargazing area flat soled shoes MUST be worn prior to boarding the bus.

Cancellation Policy:

Within 24 hours of departure - loss of 100% of the total price

Within 48 hours of departure - loss of 50% of the total price



Female astronaut in Chch next week

[NICOLE MATHEWSON](#) Last updated 09:30 30/09/2013

Supplied

SNOW-DUSTED: Banks Peninsula as seen from space.

A female astronaut who has been on five space shuttle missions will be talking in Christchurch next week.

Marsha Ivins, who has recently retired after travelling almost 27 million miles in space over more than 55 days, will be the star speaker at Tekapo's inaugural starlight festival on from October 11 to 13.

Ahead of this she will be in Christchurch to give a public talk at Canterbury University on October 9.

The Starlight Festival is being held to celebrate the creation of the International Dark Sky Reserve in the Aoraki-Mackenzie area.

The area was approved as a dark sky reserve by the International Dark Sky Association last year, recognising its pristine skies and freedom from light pollution.

It is the biggest dark-sky reserve in the world and the first to be "gold-rated", meaning the darkness of its night skies is almost unbeatable.

Ivins has previously spoken about her first Nasa mission in the early 1990s, saying she had to pause when she realised she was really "off the planet".

"When you talk to someone about flying in a plane, it's really no big deal.

"We accept flying in planes as part of daily life. But flying in space is still a wow moment, even if you've worked in the space programme, supported other space flights, and spoken to everyone who has flown before you.

"The acceleration of launch on the shuttle was only 3G (three times your body weight). The Soyuz rocket and the Apollo rockets accelerated to 5Gs.

"The direction of this force is what they call 'eyeballs in', meaning, as you are lying on your back facing the top of the rocket, it feels like a gorilla is sitting on your chest. This 3G force only sustains for a few minutes at the end of the ascent portion of the flight but it's noticeable.

Many people did not feel well for their first day or two in space with no gravity, she said.

Adjusting to life back on Earth was not difficult, but could be a "physiological" challenge for up to a few weeks.

Nasa's astronauts usually trained for about 12 months for each mission and sometimes up to two years.

Ivins will visit the University of Canterbury and talk about space at the October festival which is being organised by the Aoraki-Mackenzie International Dark Sky Reserve Board and the university.

The festival is expected to attract about 1000 stargazers and will include a photographic exhibition.

* *Marsha Ivins will speak at Canterbury University's C1 lecture theatre on October 9 at 7.30pm. [Register here for tickets.](#)*



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Galaxy expert to star at festival

JOANNE BENNETT Last updated 05:00 16/09/2013

Tekapo is to host British astronomy expert Karen Masters next month in the first New Zealand Starlight Festival.

The festival is being organised by the Aoraki Mackenzie International Dark Sky Reserve Board in partnership with University Canterbury.

UC astronomy professor John Hearnshaw said Ms Masters was well-known for her work on galaxies

"Karen has had an outstanding academic career," Mr Hearnshaw said. "She is a young scientist with a bright future and an exceptional role model for other young women in astronomy," Hearnshaw said.

An astronaut, Marsha Ivins, who has travelled almost 27 million miles in space and has orbited the Earth 990 times will be another key speaker at the festival.

The festival will celebrate the creation of the southern hemisphere's first International Dark Sky Reserve, in the Mackenzie Basin and at Aoraki/Mt Cook National Park.

The Dark Sky reserve is recognised by the International Dark Sky Association, which is the international body giving accreditation for Dark Sky Reserves and Dark Sky Places world-wide.

The Aoraki Mackenzie International Dark Sky Reserve is the world's largest such reserve (4367 square km), the first in the southern hemisphere and the first to be declared with gold tier status, the highest that can be accorded.

Its formation is a recognition of the pristine skies of the Mackenzie which are essentially completely free of light pollution. The goals of the reserve are to promote star-gazing and astro-tourism, as well as to protect the astronomical research at Mt John University Observatory.

The festival will run from October 11 to 13 at various places around Tekapo.

- ©Fairfax NZ News



Festival of stars a sellout

MATTHEW LITTLEWOOD Last updated 05:00 14/10/2013

It was a weekend of stars at Lake Tekapo.

The three-day Aoraki-Mackenzie Starlight Festival wrapped up yesterday, co-organiser Margaret Austin saying nearly every event was booked out.

"We were so lucky with the weather, you could see all the stars at night," she said.

"Everyone came away from the event with a huge appreciation for the night sky."

The Tekapo Community Hall was the main venue for the festival, but there were also events at the Godley Hotel, the Tekapo Springs Ice Rink and Spa, Cowans Hill Observatory and Mt John University Observatory.

Mrs Austin said there were hundreds of visitors, talks from veteran Nasa astronaut Marsha Ivins and astronomer Dr Karen Masters, a special photographic exhibition, and the "build your own telescope" attracting sellout crowds.

There was also a performance from the Christchurch Youth Orchestra, whose performance included the theme from Star Wars and Gustav Holst's the Planets.

Last year, the International Dark Sky Association declared the Aoraki-Mackenzie night sky a heritage site.

Mrs Austin, who led the campaign, hoped the success of the weekend's festival could help convince the United Nations Educational, Scientific and Cultural Organisation (Unesco) to declare the Aoraki/Mt Cook night sky a world heritage reserve.

"I couldn't have asked for a better weekend, and everyone who spoke at the event, especially Marsha Ivins, came away from it as an ambassador for the project," Mrs Austin said.

She was considering taking the festival to other parts of the Mackenzie district, such as Twizel, next year.



The Timaru Herald

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- @Fairfax NZ News



Tekapo's Starlight Festival attracts hundreds

Last updated 07:26 13/10/2013

Hundreds of people have converged on the world's largest "dark sky reserve" at Lake Tekapo for the first Aoraki-Mackenzie Starlight Festival.

The festival celebrates the establishment of the reserve last year in the area around the University of Canterbury's Mt John Observatory.

Being a dark sky reserve means that no upward pointing lights are allowed in the 4367sq km area. Organiser Sharlene Mullen said the festival was fantastic, with excellent weather which allowed people to easily glimpse astronomical bodies.

"We couldn't have asked for a better day. Usually with solar viewing you have to dodge clouds or wait for a cloud to leave, but there was just clear sky."

More than 200 people assembled their own Galileoscopes (small telescopes with the ability to view astronomical bodies) in a workshop yesterday afternoon and Mullen said she had heard a lot of positive comments.

The festival was organised by the University of Canterbury's Physics and Astronomy Department.

While there was no festival confirmed for next year yet, Mullen said this one would not be the last.



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Starlight Festival Signs installed both sides of Tekapo Township

The formal opening - invited speakers



Junior winners of the Poetry and Essay competition

Senior winners of the Poetry and Essay competition

The Margaret Mahy Starlight Essay/Poetry Competition Students from primary and secondary throughout New Zealand were invited to choose one of these themes:

- I am inspired by stars in the night sky
- What can we do about light pollution?
- Darkness

and to write an essay of no more than 600 words or a poem of no more than 40 lines. More information and the winning entries can be seen at:

http://www.phys.canterbury.ac.nz/starlightfestival/Mahy_programme.pdf



Gathered around solar telescopes



Christchurch Youth Symphony Orchestra playing space themed items on Tekapo Springs Ice Rink



Galileoscope assembly - some of the overflow from the very full community Hall.