



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



DARK SKY PLACES

www.darksky.org

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

OCTOBER 2014

Aoraki Mackenzie International Dark Sky Reserve

2013-2014 Report

Aoraki Mackenzie International Dark Sky Reserve - 2013 - 2014

The 2013-2014 October to September year began with the inaugural biennial Starlight Festival held over the weekend of Friday 11 October to Sunday 13 October 2013. This event was very successful with good support and attendance. Coverage of the event was included in last year's report.

Throughout this year several events held within the reserve have raised public awareness of the Reserve and Dark Skies. The Reserve has featured often in the media, in direct reporting and as background to other stories. The main television companies in NZ often include imagery from the reserve and the night sky in weather reports, news items and in advertising of themselves and of New Zealand.

Documentaries and advertising features can be seen in both electronic and static media.

Social media sites are carrying the AMIDSR story and night sky far and wide. The recent growth in popularity and understanding of astrophotography allows many to understand what true dark skies are. Hopefully they will travel to New Zealand or find their own view of the universe.

Tourism numbers have risen in the region in part due to the popularity of the Reserve. This is particularly so of overseas travellers, reflecting the interest in the clear dark skies of this area. See Regional Tourism Indicators on Page 10.

Formal and anecdotal reports have been received that indicate improved overnight accommodation figures in the region. Visitors are now staying for one or two nights when previously they drove through on their way to more well known destinations.

Jim Dougherty, President of the International Dark-Sky Association, visited New Zealand in March. During a rapid trip he visited Auckland, Christchurch and Tekapo and met with a number of New Zealand's Dark Sky people.

Now two years old the only way is onwards and upwards for the AMIDSR.



General

Aoraki Mackenzie International Dark Sky Reserve Website: <http://www.darkskyreserve.org.nz/>

The AMIDSR Board has been registered as a charitable entity, No. CC50892, with the Charities Services, part of the NZ Department of Internal Affairs, and legislated by the Charities Act 2005. Registration will make it easier for the Board to raise funds for activities, education and awareness within the AMIDSR.

Two meetings of the Management Board of the AMIDSR were held. A constitution has been developed and adopted. The Board is comprised of representatives of entities having a non commercial association with the Reserve. Terms of duty on the Board are limited to three years with the opportunity for one repeat term.

Management Board of the Aoraki Mackenzie International Dark Sky Reserve

Name	Affiliation	Place of Residence
Alan Gilmore	Superintendent of Mt John Observatory, Manager of the Reserve; AMIDSR Board Secretary	Mt John Observatory, Lake Tekapo
Prof Gary Steel	Tourism Sector, Lincoln University	Christchurch
Prof John Hearnshaw	Royal Astronomical Society of New Zealand (President), University of Canterbury, Chair of AMIDSR Board	Christchurch
Assoc Prof Karen Pollard	Director of Mt John Observatory, University of Canterbury	Christchurch
Hon. Margaret Austin	Starlight Working Party (Chair),	Christchurch
Cr Murray Cox	Mackenzie District Council	Lake Tekapo
Sally Jones	Department of Conservation	Twizel
Joy Paterson	Local Community, Mackenzie	Twizel
Steve Butler	International Dark-Sky Association	Invercargill
Tewera King	Ngai Tahu	Temuka

Aoraki Mackenzie International Dark Sky Reserve:

No new territory was added to the Reserve this year.

The AMIDSR has continued to be popular with New Zealand and international visitors especially from China. Visitor figures are included later in this report.

Lighting:

No new large scale lighting projects were completed within the Reserve. Some local bollard lighting in Tekapo has changed from the original design installed in the area. This will require follow up discussion with the Mackenzie Council. The original version of the bollards had darkened louvers in the head, but recent ones have white painted louvers. This results in spilled light above the bollard. The light source is an amber colour which does limit the impact.



The Board received reports of commercial lights in Tekapo which were non compliant with the District Plan. These included up-lights on a business hoarding and a self illuminated business sign. Following approaches to the business owners the up-lights were re-mounted to become down lights, and the illuminated sign is now unlit internally and now has capped lighting above the sign. Further work is required around internal light spill from businesses and accommodation places. This will require education and awareness around behaviour.



A new foot bridge is proposed for Tekapo, to link the town centre with the iconic Church of the Good Shepherd. Discussions are ongoing with the project team to assist with the choice of lighting.

<http://www.laketekapofootbridge.co.nz/>

Communities:

The Mackenzie District Council have indicated they will be reviewing the Mackenzie District Plan including lighting regulations. The AMIDSR Board have made contact with staff to supply information to help the drafting of new regulations. Further contact is expected as the process develops. The development of district Plans includes extensive consultation with members of the public so submissions will be prepared when the time comes.

Conservation and Research (Parks/Reserves)

Several enquiries have been received from students wishing to study the development and purpose of the Reserve. Assistance has been given in the way of documents, time and advice. The video Dark Sky by Science Communication students Jerry Rock-Archer and Laura Sargisson is an example of the work that reaches well beyond the Reserve.



Dark Sky Published on Dec 19, 2013

Dark Sky is a documentary by Jerry Rock-Archer & Laura Sargisson for their Masters of Science Communication in Documentary Filmmaking.

http://www.youtube.com/watch?v=Pp_JxqGuDZk

Funding

The AMIDSR Board were successful in raising grants and funding for the 2013 Starlight Festival. With generous sponsorship and above budgeted door sales to events at the Festival a healthy surplus is available to assist planning for future events and activities. No new grants have been secured this year, but applications have been made to several organisations as planning for the 2015 Starlight Festival gets underway.

Arts and Culture

Earth and Sky Ltd of Tekapo ran two events that celebrated the Chinese and Japanese Festivals of Qixi and Tanabata. The two festivals closely link with the stars, especially during the winter when the Milky Way is at its finest. Tanabata was celebrated on July 5th, 6th and 7th, and Qixi Jie on the 1st, 2nd and 3rd of August. There were stars, photography and music, and of course, hot chocolate! See brochures in the Appendix.

Outreach

International Dark Sky Week

Big Sky Stargazing from Mt Cook Village, celebrated International Dark Sky Week. The programme included an astrophotography workshop run by Rob Dickinson.



Earth and Sky Ice Disco - Friday 25th of April - See brochure in the Appendix

From astronauts and aliens to celestial bodies and your favourite star wars characters, Earth and Sky staff descended on Tekapo Springs and celebrated Astronomy Month with space theme games, activities, arts and crafts and the Ice Disco! Ice skating under the stars and then off to Mt John for a fantastic night out!

Mackenzie Dark Sky Spring Festival

Festival Highlights

- Naked Eye Tour** of the Dark Sky Reserve with South Canterbury Astronomy Group and viewing by telescope.
- Stars under the Stars** - Kids, dress as your favourite star, planet, or astral object. There is a prize for the best dressed!
- Warm food** ... Mackenzie High Country hospitality and cuisine ... **Live Music** ... Facebook Followers Prize ... Trade Show

Saturday 27 September 2014
Pukaki Airport, Twizel
6.30 – 9.30pm

PURCHASE YOUR TICKETS ON THE NIGHT AT THE GATE
Adults \$10 / Secondary School \$5 / Primary + Pre-schoolers FREE

 MORE DETAILS ON FACEBOOK ~ JOIN THE EVENT TO BE IN FOR A MAJOR PRIZE
<https://www.facebook.com/mackenziedarkskyfestival>

Brought to you by the Twizel Promotion and Development Association

Mackenzie Dark Sky Spring Festival

A subcommittee of the Twizel Promotion and Development Assn. organised a Dark Sky Spring Festival on Saturday, September 27, 2014. Twizel is the heart of the Mackenzie Basin and part of the AMIDSR. The Spring Equinox was a few days prior and the committee decided that a small event that would celebrate spring with a tour of the night sky would be entertaining and informative. The South Canterbury Astronomers Group provided the night sky guides for the occasion as well as 3 telescopes. The evening began with entertainment from a local band and people listened to the music and socialised. 116 people attended on what turned out to be a cloudy night with temperatures hovering around the 2 degree C mark. They were well wrapped for the cold and with hot drinks and food were more than comfortable. The South Canterbury Astronomers provided an alternative programme with astronomy talks to entertain the crowd. It was a successful evening and the intention is to repeat this annually. In 2015 it will be combined with the AMIDSR Board's Starlight Festival in October.

Community and Media Relations

The Christchurch International Airport have installed panoramic vistas to entice visitors to explore the South Island of New Zealand. John Doogan a photographer from Christchurch has taken photos of the air bridge displays at the airport, include Bridge 19, Mackenzie Night Sky. To view a virtual tour of the Christchurch Airport airbridge murals follow this link:

<http://blog.johndoogan.co.nz/2014/05/christchurch-airport-airbridges-virtual-reality-tour/>

The original Mackenzie images are the work of Fraser Gunn.



Twin Reserves

Martina McAuley, from Earth and Sky Limited, promoted the idea of “Twinning” the Aoraki Mackenzie and Kerry International Dark Sky Reserves. Martina travelled to Kerry Ireland to speak at the opening of the Kerry IDSR Office. <http://www.visitballinskelligs.ie/opening-of-dark-sky-office/>

Her article on the twinning was published on the New Zealand Government’s Tourism New Zealand website :

http://www.newzealand.com/travel/media/press-releases/2014/6/tekapo_dark-sky-reserves-common-bond_press_release.cfm

Twenty Nine seconds of Milkyway - Mostly shot in the Aoraki Mackenzie Dark Sky Reserve

<http://vimeo.com/107022422>

APOD

David Weir, a member of staff at Earth and Sky had an Aurora photo from Mt John displayed as the NASA Astronomy Picture of the Day. <http://apod.nasa.gov/apod/ap140226.html>

Apix/PSNZ 2013 Southern Regional Convention

October 4 – 6, 2013 Tekapo.

Hosted by Focus Aorangi Photographic Soc Inc., Timaru

This event organised by APIX Photographic Supplies and the Photographic Society of New Zealand was a booked out event with 150 participants. Landscape and nightscape photography filled the weekend in a photographer's paradise.



UC Alumni visits to Mt John 2014

The University Alumni office organized three 2014 visits to Mt John for its members. UC's Alumni Association hosted a 'Weekend with the Stars' at Mount John University Observatory in Tekapo, in the heart of the Aoraki Mackenzie International Dark Sky Reserve. As in previous years, the visits were heavily oversubscribed, so many who wanted to go missed out. Graeme Murray spoke about the origins of Earth and Sky Limited and the programme they run to introduce the observatory and the night sky to the public. Close on a million visitors have now been to Mt John over the last decade.

AURORA School 2014

The University of Canterbury's 2014 AURORA Astronomy School for senior high school students was held in the Easter break (27 April – 2 May) and was a great success. Twenty enthusiastic and talented year 13 students with a good background in physics and maths were selected out of 65 applications from all over the country.

The programme for the week was very full with lectures and interactive labs. We spend Tuesday and Wednesday night at Mt John where the weather was perfect after a few worries with light snowfalls at Mt John on Monday night. Lots of images were taken of stars clusters, nebulae, galaxies and a nearby NEO (Near Earth Object) passing by, which was turned into a movie on the night.



“We were extremely fortunate to have two great nights observing and there was even an aurora visible on the second night, which we spent much of the night trying to photograph.”



Operations report from Earth and Sky Limited, Tekapo

<http://www.earthandskynz.com/window-to-the-universe/en/>

2013-14 was a successful year with increased numbers from almost all markets not least of all Japan and particularly China. Good and growing support from the NZ Domestic market. Unfortunately there was above average cloudy nights for several important months of the year which curtailed Starwatching opportunities and numbers accordingly.

In conjunction with the University of Canterbury three community nights were organised for residents of the Mackenzie Country and beyond. These were well supported but again there were restrictions with the weather. More 'informal' Star parties were also held for the community at Cowans Hill at the Cowans Hill Observatory, near Tekapo Village. These were educational "fun" nights under the Stars to learn, experience and see. These were very popular with big numbers attending.

Day-time 'big-sky' awareness programmes have been initiated on Mt John with opportunities to view some Stars and planets, and to explore the Sun through a Solar telescope.

Many School groups from throughout New Zealand (and abroad) were hosted on Mt John plus visits and liasions were made direct to local Schools.

It is estimated by University sources that in excess of 270,000 people visited the top of Mt John during the past twelve months. The greater majority were day-time visitors but approximately 25,000 people visited at night to see the Stars and experience the dark sky.

Plans for the future include:

- Programs include two Community nights in conjunction with University of Canterbury, Educational / fun Star parties and the initiation of two International festivals.
- Increased educational tour opportunities for School students at all levels,
- Further development of two major Winter festivals to attract International visitors in the quieter months - particularly from Japan and China at request of Tourism NZ and Air NZ
- Improved telescopes, educational tools and dark-sky experiences.
- Community religious services at Church of the Good Shepherd - "under the Stars"
- Various other events - including Musical "Under the Stars"
- All-weather "Window to the Universe" facility to better cater for cloudy nights etc.



A team from Earth and Sky attend this year's TRENZ EXPO for a very successful event.

TRENZ is the largest international showcase of New Zealand's leading tourism and travel specialists.

Managed by the Tourism Industry Association New Zealand (TIA), TRENZ brings together around 250 leading New Zealand tourism operators with around the same number of international tourism buyers. A media programme for international and domestic media is run in association with TRENZ.

Operations Report from Big Sky Stargazing, Mt Cook

The 2013-14 year for Big Sky Stargazing at Mt Cook has been quite successful. Guest numbers have been steadily increasing (as we head to the 10,000 guest pa mark) and we find ourselves limited by our increasing demand for resources, staff, equipment facilities etc.

The growing demand is due not only to our own marketing but also to the growing general interest in stargazing and increased awareness in the 'dark sky' and the international awareness of the AMIDSR.

We promoted the IDA philosophy and the Aoraki Mackenzie International Dark Sky Reserve last season by showing the City Dark movie as one of our regular daily movies in the theatre and by incorporating a "dark sky benefits" component in our nightly live Planetarium Stargazing presentation.

A new program begins this season and a "Dark Sky" component will be introduced as part of the outside portion of our Stargazing activity.

Big Sky Stargazing have begun discussions with the Department Of Conservation (DOC) about a display and running the Losing the Dark movie in the DOC Aoraki Mount Cook Visitors Centre. Discussions continue related to including an AMIDSR component as part of the NZ Education Department's Learning Experience Outside The Classroom programme run by DOC.

<https://www.facebook.com/TheHermitage>

<http://www.hermitage.co.nz/en/the-sir-edmund-hillary-alpine-centre/big-sky-stargazing>



Visitor numbers

The following figures have been prepared by Christchurch & Canterbury Tourism (CCT) These figures are for the wider South Canterbury Region but give a realistic view of the growth in visitor numbers from 2013 to 2014.

Regional Tourism Indicators – “South Canterbury” (Mackenzie, Ashburton, Timaru)

Transaction count of electronic card data

	Jan – Mar 2013 Transaction Count	Jan – Mar 2014 Transaction Count	% Change	Average Jan – Mar 2014 Index
All International	108,022	124,108	14.9%	137
Australia	29,146	31,884	9.4%	116
China	3,696	6,429	74%	863
UK	17,083	19,149	12%	91
All Domestic	251,697	265,084	5%	134

- Domestic result is very strong, particularly with the lack of Easter in March this year.
- International – incredible growth from China, really strong with our biggest two markets per volume – Australia and the UK. Other key traditional markets of Japan, Germany and USA are all well up on 2013 with strong index scores as well.
- The index is a comparison to the average month in 2008 which is the last year where there were no significant events which could skew figures e.g. Rugby World Cup, Christchurch earthquakes.

Astrophotography

On the 25th of April **Mark Gee** teamed up with Rob Dickinson of **Landscapes ~ Rob Dickinson** to hold the first **Dark Skies Of Wonder** astrophotography workshop for 2014 at Lake Tekapo in New Zealand.

“We managed to score some pretty epic conditions under an amazing starry sky, with the cloud just rolling in at our last location at the Church of the Good Shepherd. Everyone at the workshop was getting some fantastic photos too! “Well I'm down at Lake Tekapo for the Dark Skies Of Wonder astrophotography workshop, and tonight we went out location hunting. This image is from one of the locations, and I must say it was pretty stunning out there!”



The Art of Night - The Photography of Mark Gee

“Lake Tekapo is part of the Aoraki Mackenzie International Dark Sky Reserve here in New Zealand, and it has a 'gold' level status which means the skies are almost totally clear of light pollution here. Not a bad place to be during International Dark Sky Week!”

<https://www.facebook.com/markgphoto>

What is **TANABATA** and **QIXI**?

Both the Chinese and Japanese festivals originate from the traditional Chinese legend of the Cowherd and the Weaving Girl. There are many variations of this tale, but it usually goes a little like this: There was a beautiful fairy who lived in the Celestial Heaven named Zhinü (represented by the star Vega), she wove beautiful clouds next to the banks of the Silver River (the Milky Way). She fell in love with a young Earthly cowherd Niulang (represented by the star Altair). They secretly married and had two young children. However, when the Queen Mother of the Western Skies discovered that Zhinü, her seventh daughter and an immortal, married a lowly human, she was enraged and sent Zhinü back to heaven, separating the two lovers. Zhinü wept so copiously that all the magpies in the world took pity on her and created a bridge of their wings across the Milky Way to reunite her with Niulang. Even the Empress took pity on her and allowed them to meet once a year on the evening of the seventh day of the seventh month. Variations of the story depict Zhinü as the daughter of the Jade Emperor rather than Queen Mother and may have her weaving magical cloth, or even the Milky Way itself.



← **ALTAIR**

VEGA →

★ In Japan

In Japanese, 七夕 is pronounced Tanabata.

It literally translates to “evening of the seventh” and is celebrated on July 7th every year.

Tanabata Festival is also based on the story of the Cowherd and the Weaving Girl.

The star Altair represents the cowherd prince named Hikoboshi and the star Vega represents the weaving princess named Orihime.

In Japan, it is said that if it rains on the evening of the seventh, the magpies cannot bridge the Milky Way, and so the lovers cannot meet. For the sake of Orihime and Hikoboshi, people wish for good weather on this date and so there is a tradition of wish making during Tanabata.

In Japan you will see colorful decorations around the streets and bamboo trees festooned with “tanzaku”. Tanzaku are colourful strips of paper upon which people write their wishes.

If you would like to make a Tanabata wish too, visit the Astro café on summit of Mt John and hang up your own tanzaku to celebrate this romantic star festival.

★ In China

In Chinese-Mandarin, 七夕节 is pronounced Qixi Jie [Chee- shee- Jee- eh].

In Chinese culture, Qixi Jie is celebrated on the seventh day of the seventh month according to the Chinese Lunar Calendar. This year it falls on August 2nd.

It is celebrated in the present day as a “Chinese Valentine’s Day” by young couples.

Here at Earth&Sky, we just couldn’t resist the opportunity to celebrate this festival that is so closely linked with the stars, especially during the winter when the Milky Way is at its finest. This year, on July 5th, 6th and 7th, we will be celebrating Tanabata during our Mt. John stargazing tours and on August 1st, 2nd, and 3rd for Qixi Jie.

There will be stars, photography, music, and of course, what would any sort of Valentine’s celebration be without chocolate.

Visit our office in Tekapo village for more information about tours during these dates.

七夕

Tanabata
Festival in Tekapo

7月5日(土) 6日(日) 7日(月)



Earth & Skyでは七夕の時期に合わせて特別ツアーを行います
* 吉永直也歌手Box Murray星景ライブ
* 本町舞ア・アーティストが贈る七夕イカスしの配布
* 天の川のせ、美体が直線になる記念写真撮影

お問い合わせ、ご予約はjapaneseyear@earthandsky.co.nzまで
※ 本町舞ア・アーティストの参加は2015年7月5日(土)のみです。ツアー料金は別紙通り行います。

A watercolor illustration of a man and a woman holding hands and looking at each other. They are standing in front of a large, glowing waterfall that cascades down a dark, rocky cliff. The scene is set at night, with a dark purple sky filled with small yellow stars. Two prominent yellow stars with black outlines are visible in the sky. To the left, there is a small, white, dome-shaped structure with a red stripe and a red door, situated on a small patch of ground. The overall style is soft and artistic, with a focus on light and color.

Tanabata Qixi Festival

IN TEKAPO

Tanabata Festival July 5th- 7th, 2014
Qi Xi Jie August 1st- 3rd, 2014

Phone: +64 3 680 6960 Email: info@earthandsky.co.nz
www.earthandsky.co.nz

LAKE TEKAPO



Ice Skating with the Stars

Tekapo Springs and Earth & Sky

***Celebrating all things out of
this world Ice Disco!***

**Friday 25th April
4pm - 7pm**



***Star related games and activities
(with Earth & Sky Astronomers)***

Tekapo Springs
6 Lakeside Drive
just around the lake past the
campground

Fully licensed cafe -
no surcharge on public holidays

**Ice Rink entry
\$12 for a child
\$16 for adult**

Dress as your favourite star-related character

PRIZES FOR BEST COSTUME

Category: Science, Space, Sci-Fi





GLOBAL STAR PARTY



at

Gowans
Observatory

ROWANS
OBSERVATORY

- 5 minutes from
Lake Tekapo, home
to Aoraki Mackenzie
International Dark
Sky Reserve

Look through
powerful telescopes
and speak with
knowledgeable
Astronomy Guides!

Saturday 5th April

(back-up night 6th April)

7.30pm - 10.30pm

Meet at Earth & Sky Office,
Lake Tekapo. Shuttles
provided. Warm clothing
essential, bring blankets,
torches, binoculars,
thermos, gold coins
for BBQ

Children must be
accompanied by an adult.
(No toilet facilities)

PRE-BOOKINGS:
Adults \$15, FAMILIES \$30
SALES ON THE NIGHT:
Adults \$20,
\$5.00 per child

BOOK at
EARTH & SKY OFFICE
Phone 03 6806 960
info@earthandsky.co.nz



Tekapo Snow Fest

Saturday 29th June Tekapo Village

Tekapo has BIG snow still! Come for the weekend and have some fun, take in the magic!

Saturday 29th June Programme - Village Green, lakeside of shops

10.00 am	Tekapo 4 Square - Ice Cream Sundae Snow Dig for under 13yr olds
10.00 am - 2.00 pm	Kiwi Treasures / Run 77 - Snow Sculptors Build whatever you like, bring tools. Judging will take place at 2.00pm
11.00 am	Discover Tekapo/Tasman Downs Crazy MTB Race Test your skills, under 12's one lap, over 12's two laps
11.00 am - 12.00 pm	Alpine Recreation - Snowshoe and X-country Skis Adult boot sizes available to trial this equipment
11.30 am-12.30pm	Lake Tekapo Tavern/ Tekapo Lions/Alliance Meats Mulled wine and sausages Lake Tekapo Tavern vicinity
1.00 pm	Reflections Cafe Bar and Restaurant - Biggest Snowball Competition - Start building your snowball
1.30 pm	The Merino Story Tekapo - Best Snow Costume Come dressed as Snow Princess or Snow Monster. Judging take place at 1.30 pm
6.00 pm and 7.15pm	Earth & Sky Star Tours 45 min tours, \$30 per adult, \$20 per child, Under 5 free. Bookings essential at office. Limited spaces

Ride the slopes!

Mt John Subdivision

Bring your own tobaggons, plastic bags, tubes and have a WOW of a time sliding down in the snow!

Easy walk from shops up Aorangi Cres. Follow the signs.

Prizes to be won!

Come dressed for fun!



A Tekapo community 'not-for-profit event'. Organised by Earth&Sky. Special thanks to: Tekapo 4 Square, Kiwi Treasures, Run 77 Cafe, Discover Tekapo, Alpine Recreation, Lake Tekapo Tavern, Tekapo Lions, Alliance Meats, Reflections Bar and Restaurant, Merino Story Tekapo, Ian Hayman, Liz Scott, Tekapo Untouched, Lake Tekapo School, Whitestone Contracting.

Sunday 30th June 10.30 am - **Tekapo Springs Ice Challenge** - www.tekaposprings.co.nz
12.30 pm - **PORT FM Mid Winter Swim** - Lakefront Drive, Tekapo