



**INTERNATIONAL DARK-SKY ASSOCIATION**  
3223 N First Ave - Tucson Arizona 85719-520-293-3198 - [www.darksky.org](http://www.darksky.org)

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

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

**OCTOBER 2016**

**Aoraki Mackenzie International Dark Sky Reserve**

**2015-2016 Report**

## Aoraki Mackenzie International Dark Sky Reserve - 2015 - 2016

The 2015 to 2016 year has seen increasing activity within the Aoraki Mackenzie International Dark Sky Reserve (AMIDSR). As tourism numbers climb throughout New Zealand, the benefits and impacts can be seen within the Reserve area.

The established astro-tourism operators have experienced strong growth especially from international tour groups. This growth has seen increasing demands for accommodation and services. Recent announcements for new hotels, apartments and residential developments are signs of growing confidence that the Reserve is a popular destination for visitors. Specialised accommodation businesses offering personal tours of the night sky are becoming established.

The popularity of the AMIDSR has prompted other NZ communities to investigate gaining Dark Sky Place status. Members of the AMIDSR Board are helping where possible.

The AMIDSR Board met twice this year with the second meeting on the 30<sup>th</sup> of September including the 2016 Annual General Meeting held in Twizel. This meeting preceded a Public Forum held in Tekapo where a panel of four speakers addressed topics covering tourism and light pollution.

Around 100 people attended the Dark Sky Forum at Peppers in Tekapo on Friday 30<sup>th</sup> September. The forum was of interest to a wide range of people with attendees including Mackenzie District councillors, operators, children and amateur astronomers. Mayor Claire Barlow began the proceedings in her last official opening as Mayor of the Mackenzie. Jacqui Dean (Member of Parliament for Waitaki, filling in for Nicky Wagner) spoke about striking a balance between welcoming visitors to our region whilst preserving our way of life and protecting the environment. Thanks to Peppers and Earth & Sky for sponsoring the event. (See report later)

Prior to the Public Forum the AMIDSR Board had the opportunity to meet with senior members of Ngai Tahu Tourism, who from midnight would become 50% partners in Tekapo Based Earth and Sky Ltd. This arrangement will bring tourism expertise, investment and Maori culture to the AMIDSR. This is an exciting and important development.

AMIDSR Board, September 2016



## **General**

Aoraki Mackenzie International Dark Sky Reserve Website: [www.darkskyreserve.org.nz/](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.

The second Annual General Meeting and two ordinary meetings of the Management Board of the AMIDSR were held.

Terms of duty on the Board are limited to three years with the opportunity for one repeat term. Two new board members were elected with their terms starting on the 1<sup>st</sup> January 2016. One of these new members has since resigned his position through a change in employment.

Margaret Austin has retired from the Board but has a role as an advisor to the Board for World Heritage matters.

### **Management Board of the Aoraki Mackenzie International Dark Sky Reserve - 2016**

<b>Name</b>	<b>Affiliation</b>	<b>Place of Residence</b>
Alan Gilmore	Manager of the Reserve; AMIDSR Board Secretary	Lake Tekapo
Dr Gary Steel	Tourism Sector, Lincoln University	Christchurch
Prof John Hearnshaw	Royal Astronomical Society of New Zealand (Immediate Past President), University of Canterbury, Chair of AMIDSR Board	Christchurch
Assoc Prof Karen Pollard	Director of Mt John Observatory, University of Canterbury	Christchurch
Leigh Stock*	General Manager of the Hermitage, Mt Cook	Mt Cook Village and Queenstown
Cr Murray Cox	Mackenzie District Council	Lake Tekapo
Sally Jones	Department of Conservation	Twizel
Joy Paterson	Canterbury Aoraki Conservation Board & Local Community, Mackenzie	Twizel
Steve Butler	International Dark-Sky Association	Invercargill
Kaye Paardekooper	Mt Cook Lakeside Retreat	Lake Pukaki

\*Leigh Stock has resigned his position with the Hermitage and AMIDSR in September 2016

## **Chairperson's report 2015 - 2016**

The purposes of the AMIDSR Board are:

- to promote the protection of dark skies in the Mackenzie and at Aoraki/Mt Cook
- to promote an appreciation of the night sky, the environment, astronomy and the dangers of light pollution, both within the Reserve and throughout New Zealand.

I believe we have been very successful in fulfilling these aims, as shown by the large number of tourists who are coming to the Reserve, many explicitly to see a pristine night sky. Astro-tourism is now one of New Zealand's top tourist attractions. The Mackenzie has about 1.5 million tourists a year, and Earth & Sky are expecting up to 200,000 customers annually. Many accommodation places in the region mention AMIDSR on their websites, a testimony of the drawing power of the Reserve for their businesses.

In early 2016 we amended the constitution of AMIDSR so that we have a NZwide function. This was because Margaret Austin has established a special fund for nationwide dark sky protection, and we needed

to be able to advise other Councils and bodies concerned with lighting in places further afield than the Mackenzie District.

Our major activity of the year July 2015 to June 2016 has been the Second Starlight Festival (SF2), held in Twizel in October. We estimate that about 300 people participated in some 30 or so events held over three days, but probably a considerably lesser number for any one event. This was still a success, but probably more effective marketing could have produced an even better result.

We have started planning for SF3 to be held at Aoraki/Mt Cook the Hermitage 13-15 October 2017 and at this stage three keynote international speakers have been invited and have accepted the invitation. They are Dr Natalie Batalha, a space scientist and astronomer from NASA Ames in California. She is a scientist who has worked on the Kepler satellite and is an expert on extrasolar planets and the search for life. Also Sze-leung Cheung, the director of the IAU Office for Astronomy Outreach in Tokyo. He is fluent in Chinese and English and will talk about dark skies protection in both languages. Finally we will have Kevin Govender from Cape Town, director of the IAU Office of Astronomy for Development. He is an inspiring speaker on how astronomy can bring young people into science.

On Board membership we have been fortunate to bring three new members to AMIDSR: Joy Paterson as treasurer, Kaye Paardekooper and Leigh Stock. Joy's term as treasurer will terminate on 31 December as she has taken on additional responsibilities in other areas which will be a demand on her time. Leigh has resigned from the Board following his resignation from the position of Manager of the Hermitage. We therefore have a vacancy for the position of treasurer and one or more vacancies on the Board.

My view is that we should look to Earth & Sky, to Big Sky Stargazing and to Ngai Tahu Tourism for people with the commitment to astro-tourism and the Mackenzie District to fill any vacancies, as well as to people who are resident in the Mackenzie who have the expertise and skills we want.

As you know, we have the Forum this evening at Tekapo, with four speakers on aspects of night sky protection, astro-tourism and the Reserve. This is our major activity for 2016 and is also part of the Astronomy and World Heritage Initiative established by UNESCO in many countries. In our case, the heritage concerns natural heritage of the night sky and Mackenzie landscapes.

Another initiative we strongly support (but did not initiate) is the Starlight Highway proposal for SH8 and SH80. Rebecca Greatrex in Geraldine was the instigator, but we support the proposal, given its excellent marketing potential for the Reserve as a whole.

The Board made a submission to the Mackenzie District Council at the beginning of 2016 on their long-term plan for the District. The main points made were that as street lighting in the reserve requires maintenance over the next ten years, then all those lights which do not comply with the lighting ordinance should be replaced with those that do. This is mainly to have full cut-off luminaires and, if LED lights are installed, then to have those with a warm yellow colour.

In July we also made a submission to the review of the District Plan, which included recommendations on changes to the Mackenzie Lighting Ordinance to take into account the latest LED technology.

Steve Butler, Margaret Austin and I have recently formed a committee to promote a Dark Sky Park in the Christchurch Red Zone. This is one of many proposals for the Red Zone, but actually compatible with many of the others that are promoting various day-time uses for the 450-hectare zone, which formerly had some 6000 houses (now all demolished). Our RZDSP committee is independent of AMIDSR, though it would be excellent if our Board supports it.

We have become an auxiliary committee of Greening the Red Zone, one of the projects proposing planning the Red Zone in native bush with walking and cycling tracks.

As you know, Earth & Sky has formed a joint venture with Ngai Tahu Tourism to establish an astronomy centre on the Tekapo lakeshore for astro-tourists.

The University of Canterbury has donated the historic Brashear 18-inch refractor to the project, which is now being restored. This will be a great opportunity for the Board to have a close future relationship both with Earth & Sky and with Ngai Tahu Tourism.



I wish to thank Alan Gilmore for continuing to take sky brightness measurements at Mt John on a monthly basis during new moon. These confirm that the dark Tekapo sky is being maintained, though there are monthly fluctuations but no systematic trend in sky brightness.

John Hearnshaw visited Betacom in Christchurch twice in late 2015 to advise them on a new LED lighting bollard which will be installed in Tekapo village and hopefully elsewhere in the Reserve and elsewhere in New Zealand.

As mentioned above, Margaret Austin has established a special trust fund for AMIDSR and she has raised over \$22,000 from donations to the fund. This will be used for combatting light pollution anywhere in New Zealand. We are very grateful to her for this excellent initiative.

John Hearnshaw  
Chair, AMIDSR Board  
28 September 2016

## ***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. Several other communities around New Zealand enquired as to either extending the AMIDSR or to launch new IDA applications for their own areas.

### **Lighting:**

A new residential subdivision in Twizel included a number of bollard lights which provoked strong reaction from residents because of the bright appearance of the lights from surrounding areas.

While similar bollard lights have been used successfully within the reserve, these bollards were fitted with brighter bulbs than intended. These were Low Pressure Sodium lamps so did comply with spectrum



Left: Photo of bright bollard lighting at new residential area.



Right: Close image of one bollard showing white louvers.

requirements. A change from black louvers to white, because of a fault which developed with the black coating, resulted in an overly bright glary installation.

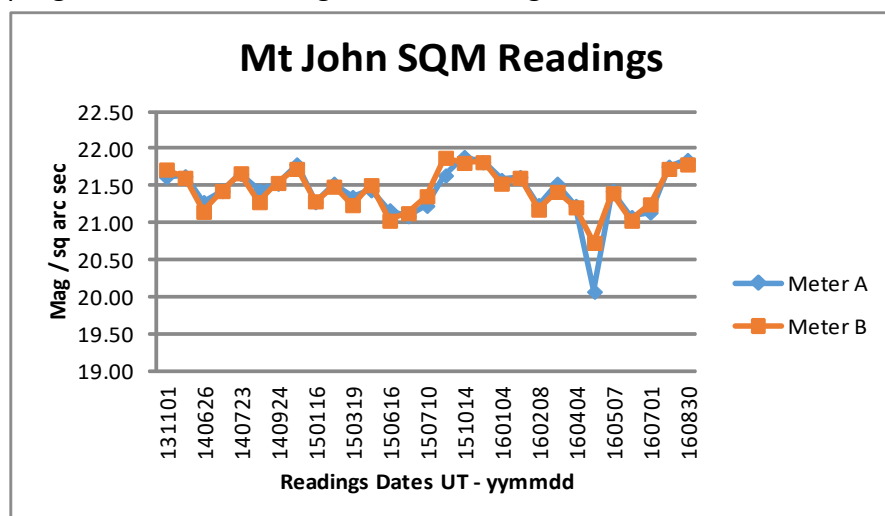
The encouraging aspect of this incident is the strong reaction from residents, which was well covered by media agencies.

The Christchurch based producers of these bollard lights are in the process of developing a new fully shielded version of the bollard. When available, these will better restrict spill lighting above and outside of the area intended to be lit.

Subdivisions for new housing continue to develop on the east and west sides of Tekapo. New bollard lights are being installed in the west side subdivision ('The Cairns') using a yellow LED. It is hoped that this type of light, developed by Spunlight for the Windsor Urban/Betacom designs in consultation with John Hearnshaw, will become standard.

## Sky Quality readings

Two hand held SQM meters were used at the Mt John Observatory by Alan Gilmore during Near Earth Object programmes. The average of five readings for each meter were recorded.



## Mt John SQM Readings

UT Date	UT Time	Meter A	Meter B	Notes
131101	1203	21.62	21.72	
140128	1253	21.63	21.61	
140626	1206	21.28	21.15	
140628	1142	21.43	21.43	
140723	1414	21.66	21.67	
140818	1043	21.44	21.28	
140924	1430	21.53	21.54	
141215	1143	21.79	21.73	
150116	1255	21.28	21.29	
150217	1430	21.53	21.49	
150319	937	21.35	21.24	
150519	1044	21.44	21.51	
150616	1132	21.17	21.03	
150622	1409	21.09	21.13	Snow over region
150710	950	21.23	21.36	
150907	1250	21.64	21.88	
151014	1125	21.89	21.81	
151109	1152	21.82	21.82	
160104	1230	21.58	21.53	
160203	1103	21.62	21.61	
160208	1151	21.24	21.18	Inc Canopus?
160310	1521	21.53	21.42	
160404	1319	21.23	21.21	
160505	1517	20.07	20.73	Sky looks bright
160507	904	21.43	21.40	
160601	1302	21.08	21.03	Snow over region
160701	1057	21.14	21.25	
160731	1242	21.76	21.73	
160830	1133	21.85	21.79	

During 2015 -2016, apart from one excursion where a bright sky was observed and another when snow cover increased sky brightness, SQM readings continue to be in the mid to upper 21 mag/sq.arc.sec. This indicates that the sky quality is remaining high with no noticeable increase in impact from local lighting.

## Communities:

### Conservation Management Strategy

In 2013 the Department of Conservation called for submissions to the Conservation Management Strategy (CMS) for Canterbury. Canterbury province includes the Aoraki Mt. Cook National Park. The AMIDSR Board made submissions to the CMS calling for increased protection for night skies across the province and particularly in the AMIDSR area. In 2016 the CMS was approved and contained the following statement: *“Natural darkness preservation and appreciation of the night sky is already recognised in the Aoraki/Mount Cook National Park Management Plan, but could be strengthened.”* And this Policy: *“2.1.3 Seek further protection of natural darkness and the night sky within Aoraki/Mount Cook National Park when the park management plan is next reviewed.”*

[www.doc.govt.nz/Documents/about-doc/role/policies-and-plans/canterbury-cms/canterbury-cms-2016-volume%201.pdf](http://www.doc.govt.nz/Documents/about-doc/role/policies-and-plans/canterbury-cms/canterbury-cms-2016-volume%201.pdf)

### Aoraki/Mount Cook National Park Management Plan

The Department of Conservation called for registrations of Interest for their upcoming review of the Management Plan. The AMIDSR Board have registered for further engagement with this review.

[www.doc.govt.nz/aoraki-mt-cook-plan-review](http://www.doc.govt.nz/aoraki-mt-cook-plan-review)

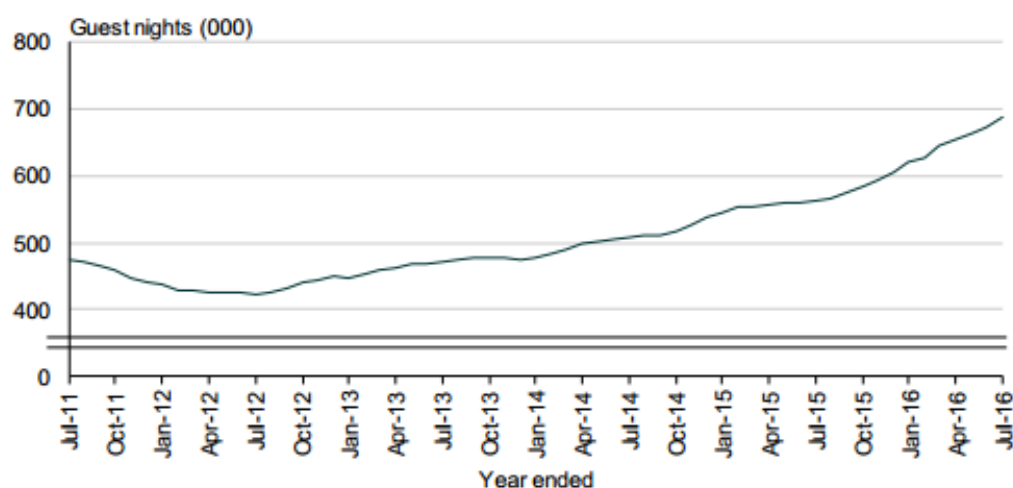
### Mackenzie District Plan

The Mackenzie district Council called for submissions from selected parties to a review of the Mackenzie District Plan. The AMIDSR Board presented a series of recommendations for outdoor lighting with limited blue wavelengths and full shielding.

A Draft District Plan will be prepared and presented for public submissions where the AMIDSR Board will either support or contest the Plan as needed.

## Tourism and development

### Mackenzie RTO Area Annual Guest Nights



Source: Statistics New Zealand

Dark Sky Tourism is becoming increasingly popular in the Mackenzie Basin. Since July 2012 when the Aoraki Mackenzie International Dark Sky Reserve was announced there has been a steady increase in bed nights recorded in the Mackenzie district. This growth in visitor numbers is further revealed by a 43.6% increase between July 2015 and July 2016.

Chart and figures from: *Statistics New Zealand (2016). Commercial Accommodation Monitor: July 2016- Mackenzie. Wellington: Statistics New Zealand*



## Tekapo Lakefront Development



A layout plan for development of the Tekapo town centre. The row of buildings along the lower edge are existing commercial shops and hotels. The upper row from left are proposed developments.

[www.boffamiskell.co.nz/project.php?v=tekapo-town-centre-concept](http://www.boffamiskell.co.nz/project.php?v=tekapo-town-centre-concept)



This view from the North East shows the existing buildings with earthworks preparations underway for the new buildings. Lower left is the recently opened pedestrian bridge leading to the Church of the Good Shepherd.

[www.stuff.co.nz/timaru-herald/news/81256969/Project-team-launched-as-Tekapo-development-forges-ahead](http://www.stuff.co.nz/timaru-herald/news/81256969/Project-team-launched-as-Tekapo-development-forges-ahead)

## Proposal for a Starlight Highway Tourist Drive

An update on the proposal to name the main highway, Highway 8, though the AMIDSR area was announced at the Public Forum in Tekapo. The New Zealand Transport Agency's Southern Region has given its approval and now national level approval is required. It is hoped that this is a formality.



## ***Mt John University Observatory***

### **Research**

Research at the University of Canterbury Mt John Observatory continues on the same lines as in previous years. The 1.8-metre MOA telescope is successfully finding gravitational microlensing events. See [www.phys.canterbury.ac.nz/moa/](http://www.phys.canterbury.ac.nz/moa/)

The 60-cm Boller & Chivens ('B&C') telescope is used by the MOA consortium through the winter months for follow-up photometry of microlensing events. It is now equipped with a three-CCD camera for simultaneous photometry in three spectral bands. The B&C is used by Earth& Sky over the summer months to show visitors southern objects, mostly the globular cluster 47 Tucanae.

The 60-cm Optical Craftsmen ('OC') telescope continues to be operated robotically by the American Association of Variable Star Observers. The CCD photometer can be alternated with a small fibre-fed spectrograph.

The 1-metre McLellan telescope is used with the Hercules spectrograph mostly for Prof Karen Pollard's astroseismology MUSICIAN programme but occasionally by visiting observers for eclipsing binary research. A PhD student in Canterbury University's Electrical and Electronic Engineering Department is using the telescope with high-speed cameras for image analysis. Gilmore and Kilmartin continue their programme of astrometry of New Earth Objects, producing several thousand astrometric positions per year.

### **Community and Media Relations**

Alan Gilmore continued to circulate monthly star chart sets to the Lake Tekapo community via the local post boxes and email PDFs. The charts are used by tourists visiting the home-stays and generally keep the community in touch with the night sky. The same chart PDF is emailed to more than 450 addresses nationally. Gilmore and Pam Kilmartin hosted visiting educational groups on daytime tours of Mt John and on evening visits. They have also hosted visiting groups at their developing home observatory in Lake Tekapo village when Mt John telescopes have been unavailable or inaccessible due to weather.

### **Media and Internet Coverage**

Canterbury University's Physics and Astronomy staff are regularly consulted by media on astronomical items of interest.

Gilmore also has a slot every two months in a rotation of science chats on Radio New Zealand.

Mt John is commonly the first point of contact by news media when a sudden astronomical event occurs. In the past year several bright meteors and a satellite re-entry were subjects of interest.

### ***Tekapo Village***

#### **Tekapo named the best place in New Zealand to fall in love**

Calling all hopeless romantics - Tekapo is officially the best place in New Zealand to fall in love.

The small South Canterbury tourist hot spot has earned top honours on a list of New Zealand's most romantic locations. It beat out popular destinations such as Milford Sound and Rotorua to take the top spot on the list, which was compiled by Tourism New Zealand.

[www.stuff.co.nz/travel/themes/couples/80926921/Tekapo-named-the-best-place-in-New-Zealand-to-fall-in-love](http://www.stuff.co.nz/travel/themes/couples/80926921/Tekapo-named-the-best-place-in-New-Zealand-to-fall-in-love)

#### **Project team launched as Tekapo development forges ahead**

A new project team has been appointed by the Mackenzie District Council to oversee the ongoing development as several commercial projects move closer towards construction.

The development includes a five-star hotel, supermarket, commercial area, youth hostel, carparking, and Earth and Sky's new headquarters to the north and west of the existing town centre.

[www.stuff.co.nz/timaru-herald/news/81256969/Project-team-launched-as-Tekapo-development-forges-ahead](http://www.stuff.co.nz/timaru-herald/news/81256969/Project-team-launched-as-Tekapo-development-forges-ahead)

#### **Million-dollar homes on the rise at Lake Tekapo**

Lake Tekapo has developed a thriving million-dollar property market as holidaymakers push up house prices.

### ***Church of the Good Shepherd seeks management of Tekapo land***

The Church of the Good Shepherd may take over management of a section of adjacent land to reduce problems caused by an ever-increasing number of visitors. With visitor numbers set to rise by up to 30 per cent each year over the next four years, the church committee has identified "critical issues" that need to be addressed.

[www.stuff.co.nz/timaru-herald/news/82009885/Church-of-the-Good-Shepherd-seeks-management-of-Tekapo-land](http://www.stuff.co.nz/timaru-herald/news/82009885/Church-of-the-Good-Shepherd-seeks-management-of-Tekapo-land)

### ***Top five Lake Tekapo freedom camping comments***

The historic Church of the Good Shepherd at Lake Tekapo is the latest popular tourist spot to be caught up in the controversy surrounding freedom camping in New Zealand.

[www.stuff.co.nz/stuff-nation/13999974/Top-five-Lake-Tekapo-freedom-camping-comments](http://www.stuff.co.nz/stuff-nation/13999974/Top-five-Lake-Tekapo-freedom-camping-comments)

### ***Mackenzie District Council approves \$800,000 Tekapo toilet project***

A public toilet block project worth an estimated \$800,000 has been given the green light in Tekapo - and the government is already being asked to help pay for it. The project, driven by high tourist demand, was given the tick of approval by the Mackenzie District Council on Tuesday. That could lead to Tekapo being one of the first towns in the country to benefit from a new \$12 million tourism fund.

[www.stuff.co.nz/timaru-herald/news/81299124/mackenzie-district-council-approves-800000-tekapo-toilet-project](http://www.stuff.co.nz/timaru-herald/news/81299124/mackenzie-district-council-approves-800000-tekapo-toilet-project)

### ***Picture perfect: Lake Tekapo tops South Island Instagram locations***

Lake Tekapo is the most Instagrammed spot in the South Island in 2015. The photo-sharing phone application on Monday released the top 10 most popular places in New Zealand to share photos from, based on the number of images geo-tagged to specific locations

[www.stuff.co.nz/travel/destinations/nz/74811745/picture-perfect-lake-tekapo-tops-south-island-instagram-locations](http://www.stuff.co.nz/travel/destinations/nz/74811745/picture-perfect-lake-tekapo-tops-south-island-instagram-locations)

### ***Tekapo Instameet to boost Mackenzie District's online profile***

The Mackenzie District's reputation as one of New Zealand's most popular photography destinations is set to receive a big boost on social media. Dozens of keen photographers and social media stars will converge on Tekapo this month for an InstaMeet. The event will bring together Instagram users from around the country to learn tips and tricks about capturing the perfect snap in the picturesque Mackenzie Basin.

[www.stuff.co.nz/travel/destinations/nz/80043928/Tekapo-Instameet-to-boost-Mackenzie-Districts-online-profile](http://www.stuff.co.nz/travel/destinations/nz/80043928/Tekapo-Instameet-to-boost-Mackenzie-Districts-online-profile)

### ***New \$3.7 million aircraft signals confidence in Tekapo tourism***

A Tekapo company will spend millions of dollars on a new aircraft in a strong show of confidence in local tourism. Air Safaris will soon take possession of a new \$3.7 million aircraft to be used for sightseeing around the South Island.

[www.stuff.co.nz/business/better-business/84471083/new-37-million-aircraft-signals-confidence-in-tekapo-tourism](http://www.stuff.co.nz/business/better-business/84471083/new-37-million-aircraft-signals-confidence-in-tekapo-tourism)

### ***Plans revealed for new Tekapo hotel development***

Plans for a new hotel development in Tekapo have been given the green light. The Mackenzie District Council approved concept plans for the Tekapo House development during a full meeting on Tuesday. The proposed facility will be located on Lot Six of the Lakefront Development site, which was purchased by Coldwater Properties Ltd.

[www.stuff.co.nz/timaru-herald/news/82750724/Tekapo-hotel-development-plans-get-tick-of-approval](http://www.stuff.co.nz/timaru-herald/news/82750724/Tekapo-hotel-development-plans-get-tick-of-approval)

It will feature a cafe and hotel accommodation, as well as over-ground and under-ground carparking.

### ***\$2.5 million retail and accommodation complex for Tekapo***

Plans for a \$2.5 million retail and accommodation complex in Tekapo have been presented by Zermatt Holdings to Mackenzie District councillors for the tick of approval. The plans show a two-storey complex on the shores of Lake Tekapo, as part of the lakefront development project. Zermatt Holdings director Karl Burtcher said the complex would feature dining and retail spaces on the ground floor, and accommodation and office space on the second floor.

[www.stuff.co.nz/timaru-herald/news/84175865/25-million-retail-and-accommodation-complex-for-tekapo](http://www.stuff.co.nz/timaru-herald/news/84175865/25-million-retail-and-accommodation-complex-for-tekapo)

### ***Starstruck Chinese flocking to Tekapo for night sky tours***

Growing demand from Chinese visitors has prompted Tekapo company Earth & Sky to run extra early morning observatory and astrophotography tours for night sky enthusiasts. Earth & Sky general manager Margaret Munro said advance bookings through to the end of March were "phenomenal, the highest I have ever seen." As a result the company would run tours into the early hours of the morning.

"In years gone by we had a lot of resistance to late tours and we were pushed to get anybody to go after 1 am. This is the first year we've had zero resistance to late tours. "The last tour will start at 3 am and finish at 4 or 5 am. It's quite astonishing really because some of these people are travelling the next day."

<http://www.stuff.co.nz/business/74968643/Starstruck-Chinese-flocking-to-Tekapo-for-night-sky-tours>

### ***Editorial: Tekapo developers should learn from the mistakes of others***

Tekapo's dark-sky experience contains more than just a touch of Catch 22. Up on Mt John, shivering in the bitter wind on a cloudless night, you find it is not completely dark after all. The combined light of millions of stars propagating through the pitch black, crystal-clear sky actually casts a faint glow across the hilltop. Some tourists have actually complained that, as a result, the dark up there is not total at all.

[www.stuff.co.nz/the-press/opinion/72468255/Editorial-Tekapo-developers-should-learn-from-the-mistakes-of-others](http://www.stuff.co.nz/the-press/opinion/72468255/Editorial-Tekapo-developers-should-learn-from-the-mistakes-of-others)

## **Twizel**

### ***Twizel light pollution slammed by residents***

Lights installed at a Twizel subdivision make a mockery of the Mackenzie Basin's reputation as an astro-tourism destination, fed-up residents say.

The Mackenzie District Council has acknowledged that bulbs installed in bollard lights on Twizel's Boundary Terrace are too bright, following complaints from locals. The council has strict restrictions on outdoor lighting in the district in a bid to maintain its reputation as one of the best sites for astro-tourism in the world.

[www.stuff.co.nz/timaru-herald/news/80209990/twizel-light-pollution-slammed-by-residents](http://www.stuff.co.nz/timaru-herald/news/80209990/twizel-light-pollution-slammed-by-residents)

### ***Aoraki Mackenzie Starlight Festival bringing big guns to Twizel***

Some of the stars of the astronomy world are about to arrive in Twizel and the town is buzzing, the organiser says. The three-day Aoraki Mackenzie Starlight Festival, a celebration of dark skies, astronomy, and the global success of Mackenzie's International Dark Sky Reserve will start on Friday, bringing with it international speakers, exhibitions, displays and documentaries.

[www.stuff.co.nz/timaru-herald/news/72679445/Aoraki-Mackenzie-Starlight-Festival-bringing-big-guns-to-Twizel](http://www.stuff.co.nz/timaru-herald/news/72679445/Aoraki-Mackenzie-Starlight-Festival-bringing-big-guns-to-Twizel)

### ***Stargazers flock to Twizel for Starlight Festival***

Organisers of the Aoraki Mackenzie Starlight Festival say they are "utterly ecstatic" after hundreds of keen stargazers flocked to the event over the weekend. About 300 astronomy fans converged on Twizel for the three-day event, which celebrated everything out-of-this-world. International guest speakers, exhibitions, displays and documentaries were all on the cards for those who attended the event, which was first held in 2013.

The event had extra significance this year, as it was held during the UN's international year of light which recognised the value of darkness and the problems associated with light pollution.





**The Aoraki Mackenzie  
Starlight Festival**  
9-11 October 2015 — Twizel

Celebrate New Zealand's International Dark Sky Reserve



Photo: Fraser Gunn

**VENUES:**  
TWIZEL EVENTS CENTRE,  
HILLARY ALPINE CENTRE (Mt Cook),  
MT JOHN OBSERVATORY (Tekapo)





Prof. Chris Lintott    Dr Seth Shostak    Dame Anne Salmond

[www.starlightfestival.org.nz](http://www.starlightfestival.org.nz)

## The Aoraki Mackenzie Starlight Festival



Hear Oxford astronomer, Professor Chris Lintott.  
Learn about the Search for Extraterrestrial Intelligence from American researcher, Dr Seth Shostak.  
Delve into Maori astronomy and traditions with Dame Anne Salmond.  
Visit Hillary Alpine Centre and planetarium at Mt Cook, and Mt John University Observatory at Tekapo.  
Son et lumiere by Steve Chadwick.  
Astronomical art workshop.  
Galileoscope workshop.  
Photographic exhibition.  
Light Beyond the Bulb exhibition for the International Year of Light 2015.  
Margaret Mahy starlight poetry/essay competition.  
Enjoy the Woolston Brass Band UNESCO Starlight Concert, Starlight BBQ and stargazing.













### ***Sun the star of the show for festival's first day***

Our closest star baked down over Twizel on the opening day of the Aoraki Mackenzie Starlight Festival, giving people the perfect opportunity to see it up close through a specially-designed telescope. The three-day festival – a celebration of dark skies, astronomy, and the global success of Mackenzie's International Dark Sky Reserve – will bring internationally-renowned speakers, exhibitions, displays and documentaries to Twizel over the weekend.

Punters flocked to the University of Canterbury's hydrogen alpha telescope outside the Twizel Events Centre, through which they could see sunspots and solar flares.

[www.stuff.co.nz/timaru-herald/news/72877729/Sun-the-star-of-the-show-for-festivals-first-day](http://www.stuff.co.nz/timaru-herald/news/72877729/Sun-the-star-of-the-show-for-festivals-first-day)

### **Aoraki Mt Cook**

### ***'Unprecedented' tourist demand packs out Aoraki/Mt Cook***

Accommodation at Aoraki/Mt Cook is booked out as "unprecedented demand" forces tourists to stay in nearby Twizel and Lake Tekapo. Hotel operators in both towns are reporting busier than usual off-seasons as they pick up the overflow from the alpine village, which has limited places to stay.

[www.stuff.co.nz/business/82730219/unprecedented-tourist-demand-packs-out-aorakimt-cook](http://www.stuff.co.nz/business/82730219/unprecedented-tourist-demand-packs-out-aorakimt-cook)

### ***Workshops give public a say on Aoraki/Mt Cook National Park management plan***

Members of the public get the opportunity to have input into the 10-year management plan review of Aoraki/Mt Cook National Park through upcoming workshops. The park, which covers 70,728 hectares and comprises a 19-peak mountain range, including Aoraki/Mt Cook, is managed on behalf of the people of New Zealand by the Department of Conservation (DOC).

[www.stuff.co.nz/timaru-herald/news/83497329/workshops-give-public-a-say-on-aorakimt-cook-national-park-management-plan](http://www.stuff.co.nz/timaru-herald/news/83497329/workshops-give-public-a-say-on-aorakimt-cook-national-park-management-plan)

### ***Overcrowding a growing issue in New Zealand's national parks***

Waves of tourists are overcrowding New Zealand's national parks – and not just in summer.

For the de facto mayor of Mt Cook, there is no respite. Visitors to Aoraki/Mt Cook National Park have increased 25 per cent from last year. Half a million would soon visit the park annually, during times that were once quiet.

[www.stuff.co.nz/travel/news/83033637/Overcrowding-a-growing-issue-in-New-Zealands-national-parks](http://www.stuff.co.nz/travel/news/83033637/Overcrowding-a-growing-issue-in-New-Zealands-national-parks)

### **Starlight Festival - 2015**

To celebrate the creation of the southern hemisphere's first International Dark Sky Reserve, the Aoraki Mackenzie Dark Sky Reserve Board and the University of Canterbury hosted the Aoraki Mackenzie Starlight Festival in Twizel, from October 9-11 2015. This was an official event for the International Year of Light 2015.

[www.stuff.co.nz/timaru-herald/news/71627960/aoraki-mackenzie-starlight-festival-celebrates-night-sky](http://www.stuff.co.nz/timaru-herald/news/71627960/aoraki-mackenzie-starlight-festival-celebrates-night-sky)

<http://rasnz.org.nz/40-rasnz-desk/312-presdesk-2015-july6>

[www.earthandskynz.com/window-to-the-universe/ch/news/99-aoraki-mackenzie-starlight-festival](http://www.earthandskynz.com/window-to-the-universe/ch/news/99-aoraki-mackenzie-starlight-festival)

### **Dark Sky Forum - 2016**

Around 100 people attended the Dark Sky Forum at Peppers in Tekapo on Friday 30th September. The forum was of interest to a wide range of people with attendees including MDC councillors, operators, children and amateur astronomers. Key take-outs from the forum include:

**Jacqui Dean** (Member of Parliament for Waitaki, filling in for Nicky Wagner) spoke about striking a balance between welcoming visitors to our region whilst preserving our way of life and protecting the environment.

**Steve Butler** of the Dark Skies Group, Royal Astronomical Society of New Zealand said "New Zealand may be 100% pure but it's only 50% dark". His recommendations for keeping our skies dark and combating light pollution included:

- Lights on only when needed (physically turn off or use timers).
- Only light the area that needs to be lit.
- Ensure lights are fully shielded and pointing downwards.
- No brighter than necessary.
- Minimise blue light emissions
- Attitude changes - understanding that the night is a natural part of life and not to be feared, rather something to be celebrated and protected.

**Graeme Murray**, from Earth & Sky, spoke about astro-tourism and the new development at Tekapo:

- Astro-tourism is significant. Air New Zealand's survey of their premium market in Japan showed that 72% of those surveyed said they'd visit to see the stars. Star-gazing was number 8 on the "must-do" list for Chinese visitors.
- Earth & Sky will have 90 staff this season and are expecting in excess of 200,000 visitors.



- As of midnight on September 30th, Earth & Sky and Ngai Tahu Tourism are official business partners.
- The new complex at Tekapo will have as its centrepiece the 125-year-old Brashear telescope, which was gifted to the Observatory in the 1960s.

**Professor John Hearnshaw**, from the University of Canterbury, explained why light pollution is harmful:

- Artificial light interferes with the habitat of many species.
- It disrupts human hormone production and circadian rhythms.
- It wastes electricity putting light into the sky where it's not needed.
- Hinders star gazing (which is one of New Zealand's biggest attractions).

*(Report adopted from Christchurch and Canterbury Tourism email newsletter)*



### Mackenzie Public Forum

**Venue: Lake Tekapo, Peppers Bluewater Resort**




**7.30 pm Friday 30 Sep 2016**  
*Admission free!*

Come and hear a panel of four experts speak about the Aoraki Mackenzie International Dark Sky Reserve and answer your questions.

- **Hon Nicky Wagner**, Assoc. Minister for Conservation on conservation and environmental issues in the Mackenzie
- **Steve Butler**, Dark Skies Group, Royal Astronomical Society of New Zealand on how to keep our skies dark and combat light pollution
- **Graeme Murray**, Earth & Sky, Tekapo on astro-tourism and new E&S developments at Tekapo
- **Prof. John Hearnshaw**, University of Canterbury on the health and environmental effects of light pollution.
- MC: **Hon Margaret Austin**

9.00 pm: Refreshments will be served.  
9.30 pm (weather permitting) Come and see the wonders of the universe. Earth & Sky astronomers will have portable telescopes to show you stars, nebulae and planets (Mars and Saturn will be well placed in the western sky)

[www.darkskyreserve.org.nz](http://www.darkskyreserve.org.nz)










### **Operations report from Earth and Sky Limited, Tekapo**

Earth & Sky have been awarded with a Certificate of Excellence by Trip Advisor! We want to take this opportunity to thank all of our wonderful guests worldwide, for all of their support and the excellent reviews we have received!  
<http://www.earthandskynz.com/window-to-the-universe/en/>

### ***Tekapo's Earth & Sky star gazing strikes joint venture with Ngai Tahu***

Tekapo stargazing tour operator Earth & Sky has signed a joint venture with Ngai Tahu Tourism.

Earth & Sky was set up in 2004 in association with the University of Canterbury to bring tours to the Mt John Observatory near Lake Tekapo.

Co-owner Graeme Murray and his business partner Hide Ozawa recently acquired land from the Mackenzie District Council but required a partner to help develop it for the tours.

"We were also missing out on Maori cultural heritage and our new partnership will change that," Murray said.

Murray said Earth & Sky tours had become so popular over the past five years the company now employed 60 people over winter and up to 90 during summer.

Earth & Sky expects more than 200,000 visitors over the next year on the observatory tours.

The company charges \$145 for a two-and-a-half-hour tour with shorter and cheaper options available for different themes such as sunsets, the moon, as well as stargazing.

Ngai Tahu Tourism chief executive Quinton Hall said the investment in Earth & Sky was a good fit with the other visitor experiences his company operated - jet boats, helicopters, and guided walks in tourism hot spots around the country.

[www.stuff.co.nz/business/84099228/star-gazing-joint-venture-takes-off](http://www.stuff.co.nz/business/84099228/star-gazing-joint-venture-takes-off)

### ***Ngai Tahu invests in Tekapo company Earth and Sky***

The future of a multimillion-dollar Tekapo development is now secure, following news that New Zealand's biggest tourism operator is investing in the Mackenzie District. Ngai Tahu Tourism has announced it will partner with astro-tourism company Earth and Sky. The two companies will become joint partners, sharing the costs of Earth and Sky's new, multimillion-dollar facility in the centre of Tekapo.

[www.stuff.co.nz/timaru-herald/news/84110082/Ngai-Tahu-invests-in-Tekapo-company-Earth-and-Sky](http://www.stuff.co.nz/timaru-herald/news/84110082/Ngai-Tahu-invests-in-Tekapo-company-Earth-and-Sky)



### **Operations report from Big Sky Stargazing**

[www.hermitage.co.nz/en/the-sir-edmund-hillary-alpine-centre/big-sky-stargazing](http://www.hermitage.co.nz/en/the-sir-edmund-hillary-alpine-centre/big-sky-stargazing)

We are progressing well with our plans for our stargazing facility at the Mt Cook airport. Plans have been submitted and we are working closely with the Department Of Conservation to enable us to proceed to building very soon. We are seeing a continued growth in Big Sky's popularity and subsequent customers year on year with the latest accolade being recognized in the most recent Christchurch & Canterbury Tourism's update below. Leigh Stock, General Manager

### **Mackenzie stargazing named one of world's top rewards**

Canterbury's Mackenzie region has been hailed as one of the world's top incentive reward destinations by TTT Mice Asia magazine. Big Sky Stargazing at Aoraki/Mount Cook's Hermitage hotel features at Number 15 of the best in the globe. The August 2016 cover story recommends the Aoraki Mackenzie International Dark Sky Reserve's "unparalleled vistas of the night sky... nestled against the backdrop of spectacular alpine landscapes."



[www.mtcookretreat.nz/stargazing.html](http://www.mtcookretreat.nz/stargazing.html)

Located in the the gold level Aoraki International Dark Sky Reserve, the Lakeside Retreat and onsite Pukaki Observatory is perfectly located to explore one of the darkest skies in the world. The observatory is well equipped with a 6" refractor telescope, you can take a closer look at far away objects such as Saturn, Jupiter and its moons, clusters, nebula and constellations.

Imagine sitting in the hot tub stargazing under this amazingly dark sky with only the stars above and the silence of the mountains surrounding you! Whether viewing from the hot tub or observatory you will be entranced.

Bring your camera for some amazing astrophotography opportunities.

We have recently developed an Aurora Australis viewing spot where, in the right conditions, you can see and photograph this amazing phenomenon.

#### **Operations report 2016:**

"The observatory wine cellar experience has been very popular with guests this year. The tour is exclusive and group size is typically 2-4 people making the experience personalised with the opportunity to view a large number of objects through the telescope. Some guests are new to astronomy, some cannot see the stars in their own country due to pollution, and some are long term astronomers who want to explore the southern sky. Astrophotography has also been popular and guests can attach their own camera to the telescope to get deep space photographs or take time lapse of the milky way from the astro lawn. 95% of our guests are international and they are often aware of the dark sky reserve when booking to stay."



**Sky Scape** – A new stargazing accommodation facility located near Twizel is due to open later this year. The buildings are designed for a 'sleep under the stars' experience and are being developed by Bevan and Bridget Newlands. <https://www.facebook.com/Skyscapenz/>

#### **A Night of Astrophotography with Mark Gee and QueenstowntoKaikoura.com TEKAPO**

Despite inclement weather this event went ahead as an indoor gathering on Sat 28th May.

The meeting included theory and post processing and was held at the Tekapo Community Centre, Aorangi Crescent. This was part of the Christchurch Canterbury Tourism InstaMeet.

The free astrophotography evening was run by Mark Gee and Rachel Gillespie from "Queenstown to Kaikoura" as an informal tutorial on basic instruction on how to take photos of the night sky covering camera settings including shutter speed, aperture, ISO and white balance, manual focusing, and planning and composing a shot.

<https://www.facebook.com/events/254220054924504/>

# MID-AUTUMN FESTIVAL DAY CRAFT

● DATES: THURSDAY 15TH SEPTEMBER - SATURDAY 17TH SEPTEMBER

● TIME: 11:30 AM - 3 PM

● LOCATION: ASTROGRAPH BUILDING ON THE SUMMIT OF MT JOHN

The Mid-Autumn Festival is a harvest festival celebrated by Chinese people. We're celebrating this special festival by decorating Chinese lanterns on Mt John during the day. Come join us and decorate your own lantern!

For more information, enquire at Earth & Sky office or contact us at 0368069601

[www.earthandsky.co.nz](http://www.earthandsky.co.nz)



Meet at Earth&Sky Office,  
Lake Tekapo.  
Shuttles provided.  
Warm clothing essential,  
bring blankets, torches,  
and binoculars.

Book online or at Earth&Sky office!  
Phone: 03 6806 960  
[info@earthandsky.co.nz](mailto:info@earthandsky.co.nz)  
Adult: \$90  
Child: \$20 (5-17yrs)  
Infant: Free (0-4yrs)

Star-BQ

## THE COSMIC VOYAGE

Wander with us as we showcase the night sky to you in a way that all ages can understand, and watch in awe as the doors of the universe are opened up in front of your very eyes.

**FRIDAY 15th APRIL**

(Back up date: Saturday 16th)

**Location: Cowan's Observatory**

**6:00 pm ~ 9:00 pm**

**First departure: 6:00pm**

**Second departure: 7:00pm**

**Third departure: 7:45pm**

Our buses will be departing from our Earth&Sky village office at the times listed above.  
Please come to our office to check-in at least 10 minutes before your departure.

[www.earthandsky.co.nz](http://www.earthandsky.co.nz)







**Global Astronomy Month**  
presented by Astronomers Without Borders

**Ice Skating under the Stars**  
**Celebrating all things Space**  
**"ICE DISCO"**



**Friday 22nd April**  
**4pm - 7pm**

Best dressed and colouring competitions, PRIZES up for grabs!

FREE Fun Activities such as arts and crafts!

All day skate entry:  
\$13 per child  
\$18 per adult

Tekapo Springs & Lakeside Drive  
- just around the lake past the campground  
Fully licensed cafe

**tekapo springs**  
Lifting Your Spirits

**EARTH & SKY**  
NEW ZEALAND

# TANABATA STAR-PARTY

**PRICE:**  
ADULT: \$10  
CHILD: \$15  
(5-17YRS)

**DATE:**  
JULY 9TH

**LOCATION:**  
COWAN'S OBSERVATORY



DEPARTURE FROM EARTH&SKY OFFICE IN TEKAPO VILLAGE.  
TEKAPO IS VERY COLD IN JULY, BUT THE WINTER STARS ARE WORTH IT. BRING LOTS OF WARM CLOTHES AND COZY BLANKETS!  
ENQUIRE AT THE EARTH&SKY OFFICE FOR TICKETS AND INFORMATION, OR BOOK ONLINE AT [www.earthandsky.co.nz](http://www.earthandsky.co.nz).  
IN THE CASE OF POOR WEATHER, THE STAR PARTY'S ALTERNATE DATE IS SUNDAY JULY 10TH.

LAKE TEKAPO  
**EARTH & SKY**  
NEW ZEALAND

# EARTH&SKY MATARIKI STAR-PARTY

Fundraiser for the Early Childhood facility upgrade.

**Date: Friday 22nd July**  
**Location: Cowan's Observatory**

**First Departure: 4pm**  
\*\*Includes a traditionally prepared Maori dinner called "Hangi".\*\*  
Adult: \$50, Child(5-17yo): \$30

**Second Departure: 6pm**  
(Only star-gazing.)  
Adult: \$40, Child (5-17yo): \$20

**Third Departure: 7pm**  
(Only star-gazing.)  
Adult: \$40, Child (5-17yo): \$20

- Limited spaces available - Last shuttle returns at 8pm.
- Warm clothing essential, bring blankets, torches, and binoculars.
- If it rains or snows: Second and third departure will be cancelled. Hangi will be held at the community hall with presentation of Matariki.

Book online or enquire at the Earth&Sky office.  
Phone: 03 680 6960 Email: [info@earthandsky.co.nz](mailto:info@earthandsky.co.nz)  
**www.earthandsky.co.nz**

LAKE TEKAPO  
**EARTH & SKY**  
NEW ZEALAND

# MATARIKI PRE-DAWN TOUR

*Whenua me te rangi Matariki hāere ata mua*

**Tōhura EXPLORE**  
The wonderful world of the Maori people and celebrate Matariki Maori New Year

**Whai wāhi ENGAGE**  
Through our telescopes, you can share in this spectacular stargazing journey together

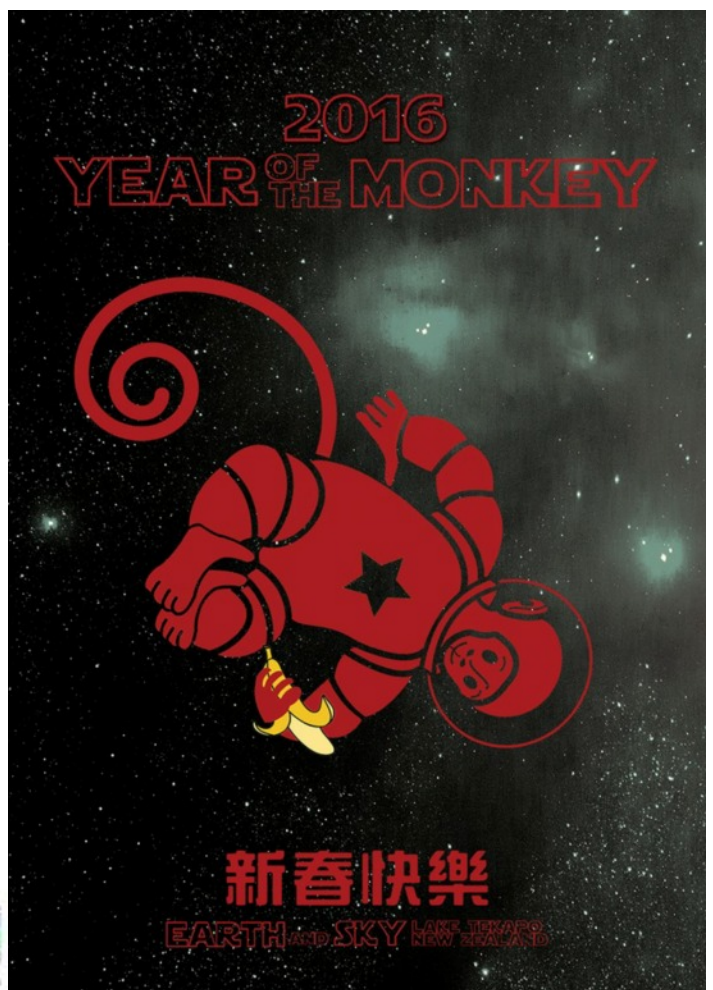
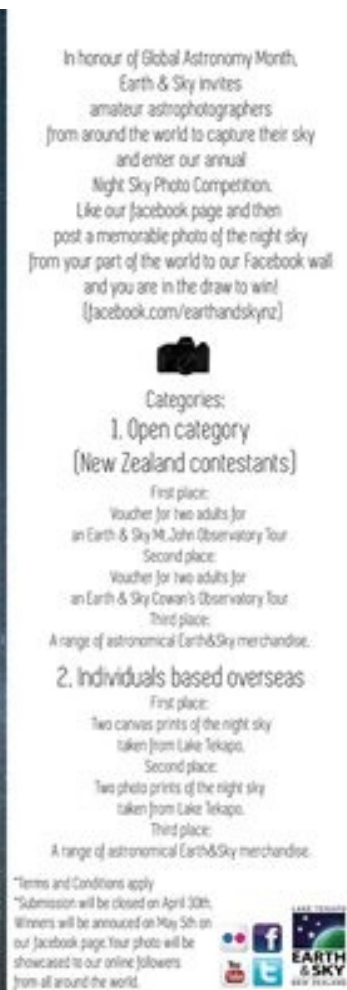
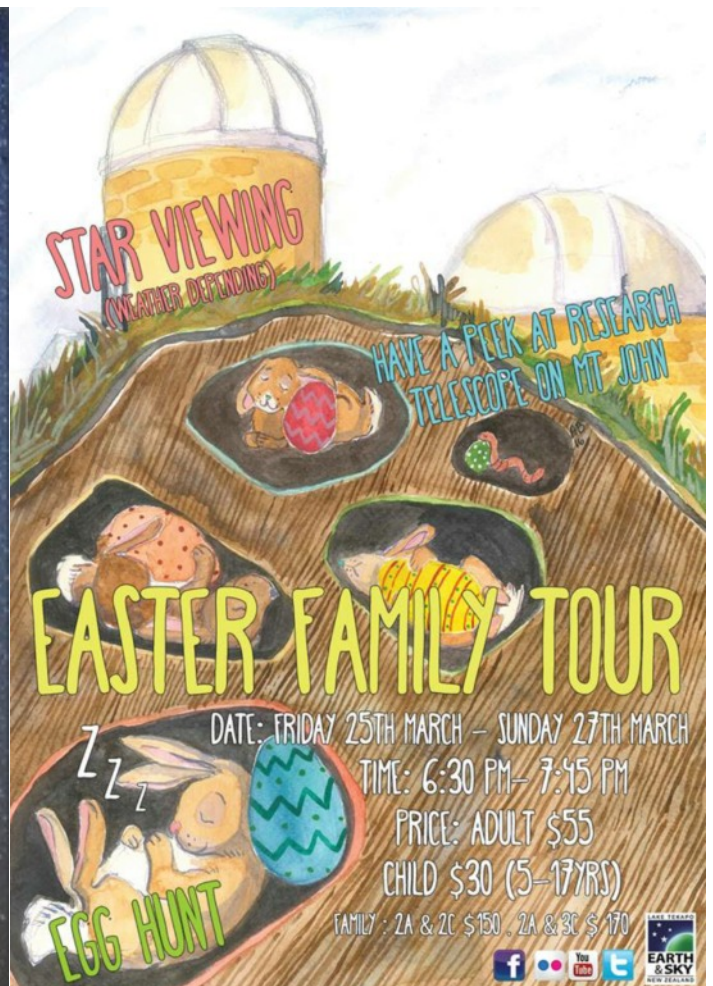
**Whakarangatira ENRICH**  
Come, learn and experience Matariki through stories, myths & legends

**June 20th - July 20th 2016**  
**Friday - Saturday - Sunday**  
**6:45am to 7:45am**  
**Location: Lakeside - Lake Tekapo**  
**Adult: \$75.00 Child: \$50.00**

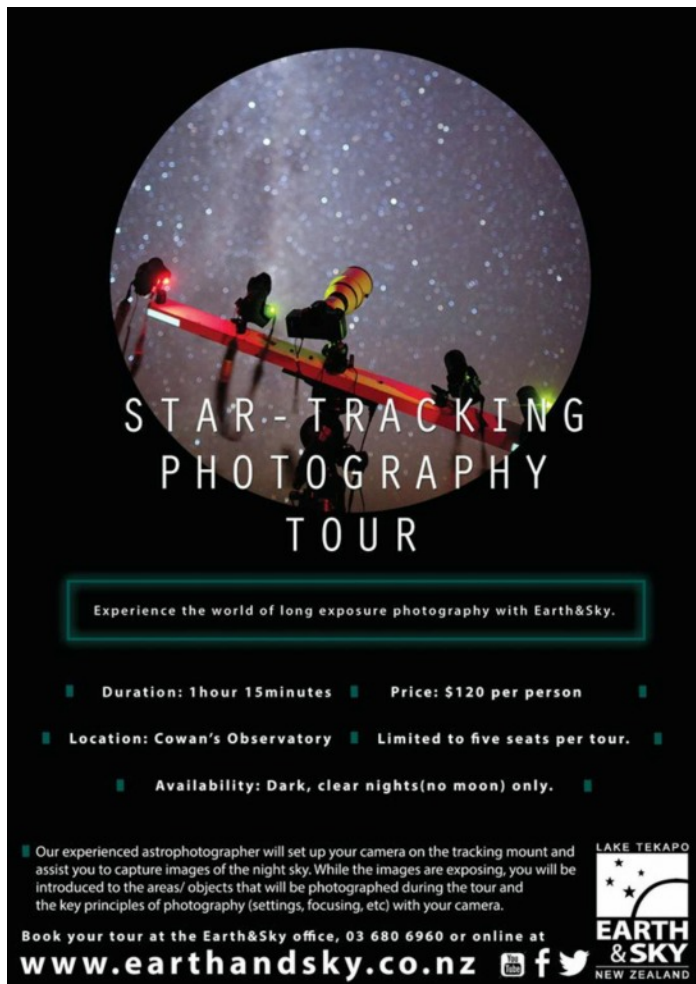
Book online or enquire at the Earth&Sky office.  
Phone: 03 680 6960 Email: [info@earthandsky.co.nz](mailto:info@earthandsky.co.nz)  
**www.earthandsky.co.nz**

LAKE TEKAPO  
**EARTH & SKY**  
NEW ZEALAND









**STAR-TRACKING PHOTOGRAPHY TOUR**

Experience the world of long exposure photography with Earth&Sky.

- Duration: 1 hour 15 minutes
- Price: \$120 per person
- Location: Cowan's Observatory
- Limited to five seats per tour.
- Availability: Dark, clear nights (no moon) only.

Our experienced astrophotographer will set up your camera on the tracking mount and assist you to capture images of the night sky. While the images are exposing, you will be introduced to the areas/ objects that will be photographed during the tour and the key principles of photography (settings, focusing, etc) with your camera.

Book your tour at the Earth&Sky office, 03 680 6960 or online at [www.earthandsky.co.nz](http://www.earthandsky.co.nz)

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**EARTH & SKY**  
NEW ZEALAND



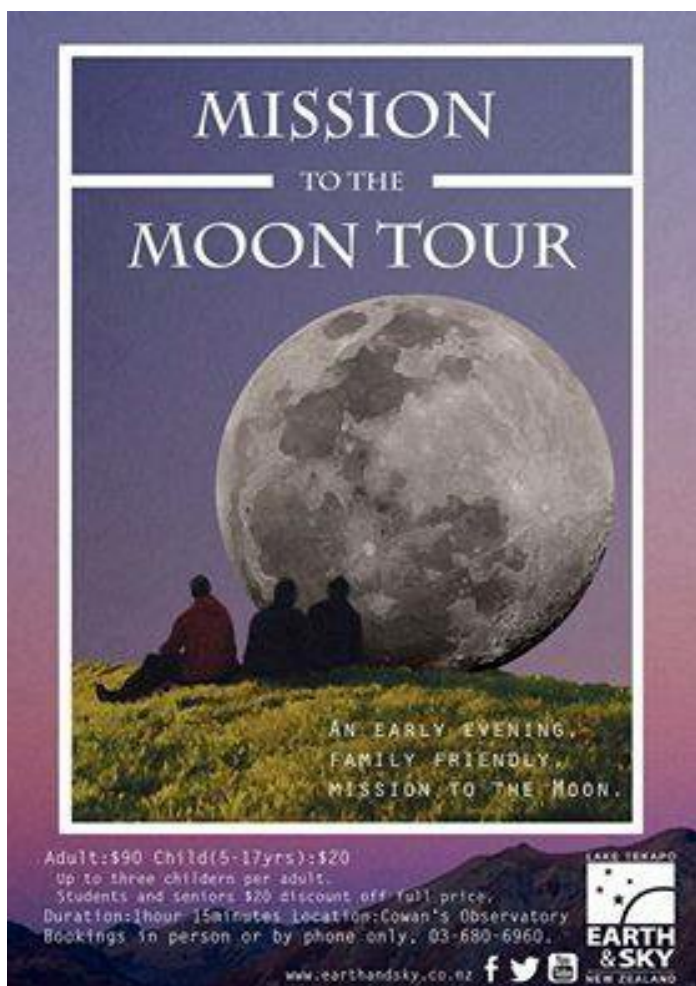
**Planet Watch Week**

Which planet will you see through a telescope on an Earth & Sky Observatory Tour

On a clear night, planets can be viewed through powerful telescopes; revealing other worldly moons, incredible rings and amazing astronomical secrets. Knowledgeable guides reveal the world famous southern night sky; where parts of the Milky Way can be viewed and star clusters are displayed. When the stars are hidden from view, take a journey to discover the nocturnal world of an astronomer. Learn about the search for planets in other solar systems and visit a range of research equipment.

Night Tour depart every evening, booking are essential.  
Book your tour now at the Earth & Sky Office (next to the Godley Hotel), 03 680 6960 or online at [www.earthandsky.co.nz](http://www.earthandsky.co.nz)

LAKE TEKAPU  
**EARTH & SKY**  
NEW ZEALAND



**MISSION TO THE MOON TOUR**

AN EARLY EVENING, FAMILY FRIENDLY, MISSION TO THE MOON.

Adult: \$90 Child (5-17yrs): \$20  
up to three children per adult.  
Students and seniors \$20 discount off full price.  
Duration: 1 hour 15 minutes Location: Cowan's Observatory  
Bookings in person or by phone only. 03-680-6960.

LAKE TEKAPU  
**EARTH & SKY**  
NEW ZEALAND



**SUNSET TOUR**

Experience it all with Earth and Sky at Mt John University Observatory over a memorable evening of photography.

**\$95 per person**  
Available until 2nd April 2016  
Weather dependent, limited space bookings are essential.

Bring your  seize the moment.

Observe the beauty of lights vibrant transformation, from sunset through to dusk, as darkness descends and starlight starts to shine.

Book your tour now at the Earth & Sky Office (next to the Godley Hotel), 03 680 6960 or email [info@earthandsky.co.nz](mailto:info@earthandsky.co.nz)

LAKE TEKAPU  
**EARTH & SKY**  
NEW ZEALAND





LAKE TEKAPO



**EARTH  
& SKY**  
OBSERVATORY  
TOURS



## Earth & Sky Treasure Hunt at Mt John University Observatory

**Sunday 11th October**

2.00-4.30pm, Mt John University Observatory, Godley Peaks Rd, Lake Tekapo

Collect a booklet from the Astro Café, summit of Mt John, any time after 10am, (activity duration: 30-90 minutes)

Astronomy themed Treasure Hunt at Mt John University Observatory. Also includes Astronomy themed booklet and activities during the afternoon including Stargazing, (weather permitting.) Collect your booklet and information from the Astro Café, summit of Mt John, anytime after 10am. Also available from the Earth & Sky Office, (Lake Tekapo.) The booklet contains questions and information about astronomy, the dark sky reserve, fighting light pollution, kiwis in the night sky and more!



**31ST DECEMBER  
NEW YEAR'S  
EVE**

**COSMIC ODYSSEY**

Thursday 31st December  
9:45 pm - 12:45 am  
**SECRET LOCATION**  
(Weather permitting)

<p>First departure: 9:45pm</p> <p>Second departure: 10:30pm</p> <p>Third departure: 11:15pm</p>	<p>Book online or at Earth&amp;Sky office! <a href="http://www.earthandsky.co.nz">www.earthandsky.co.nz</a> Phone: 03 6806 960 <a href="mailto:info@earthandsky.co.nz">info@earthandsky.co.nz</a></p>	<p>Price: Adult: \$90 Child: \$50 (5-17yrs) Infant: Free (0-4yrs) Star-B-que</p>
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Meet at Earth&Sky Office, Lake Tekapo. Shuttles provided.  
Warm clothing essential, bring blankets, torches, and binoculars.

Our buses will be departing from our Earth&Sky village office at the times listed above.  
Please come to our office to check-in at least 10 minutes before your departure.

LAKE TEKAPO

**EARTH  
& SKY**  
NEW ZEALAND