

Andromeda Galaxy, photo by young amateur astronomer Jurij Stare.

**7th European Symposium
for the Protection of the Night Sky
Light Pollution and Global Warming**

International Exhibition: Quality Lighting and Light Pollution
5-6 October 2007, Bled, Slovenia, www.darksky2007.si



Light pollution from near Triglav national park, Slovenia.

Why does nobody care about 1700 million €*

glowing to waste over Europe?

7th European Symposium for the Protection of the Night Sky

Light Pollution and Global Warming

International Exhibition: Quality Lighting and Light Pollution
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Invited are experts from the following fields:

- Representatives of institutions for protection of natural heritage
- Mayors
- Individuals responsible for purchasing of lamps in municipalities
- Road experts
- Energy saving experts
- Producers of lamps and power regulation equipment
- Landscape architects
- Architects
- Biologists
- Medical experts
- Environmentalists
- Astronomers

Special guests of the conference:

- representatives of the Environment, Public Health and Food Safety Committee of the European Parliament,
- representatives of the European Commission, Environment DG,
- Important representatives of Ministries for the Environment of European states
- representatives of the European Environment Agency,
- high-level politicians.

In view of the increasing awareness of the influence of global warming on climate change, the issue of light pollution is definitely not a sentimental one, but one of a call for action. It is entirely clear that the energy used without the need for excessive lighting increasingly contributes to the degradation of the environment. It is also clear, however, that pollution could be greatly reduced by means of small investments and environment-friendly decisions. As the situation in all the EU countries has been worsening from year to year, it is high time to adopt a suitable European directive. Its adoption as soon as possible would consequently reduce greenhouse gas emissions.

**Alojz Peterle, Honorary Patron of this Conference,
Prime Minister of the first democratically elected Slovene
Government and Member of the European Parliament**



There is no doubt that we need light at night to provide the safety on roads and streets. However, the need of modern man for a moderate amount of light has, by means of industry, turned into unstoppable, boundless power to turn night into day.

We use lighting everywhere, whether necessary or not, and very often the lighting is excessive. Worst of all is the fact that at least 30% of all light is plainly spilled upwards because of inappropriate lamps, which illuminate the night sky instead of streets and pavements.

What was in the past a reasonable need for light and the feeling of security in the dark has been brought, in Europe, to an extreme, which was several decades ago unimaginable. Enormous consequences of the light pollution have become apparent. By our way of using light we blind people on roads, illuminate their bedrooms and disturb animals. Many nocturnal animals are dying out because of the inappropriate outdoor lighting. There are most recent research on the increase in the number of people suffering from cancer caused by light at night. The stars disappear in the night sky above Europe: once dark skies are turning into white, light polluted cover. Most city dwellers cannot see the Milky Way any more and lose contact with the source of their existence – space.

The residents of Europe are, instead of increasing their standard of living, becoming the slaves and victims of their own consumerism.

Light, which used to be a much desired commodity, has been turned into its opposite.

The dark side of light has become apparent. This requires the European Union to act now!

The 7th European Symposium for Protection of the Night Sky will inform participants about many problems, the most recent researches, as well as possible solutions. The latter involve political power, and therefore we have invited the most important representatives in politics. Light pollution contributes a great deal to global warming. This is another reason to stop it. Light pollution requires taking measures just as global warming does. Clear and efficient action of the European Union is required, here and now!

Light pollution in Loški Potok in the middle of the largest forest in Central Europe, Slovenia. Photo Andrej Mohar.



The programme of this very intensive conference will cover the following issues:

1. The great losses of energy and increase in the emission of greenhouse gases due to light pollution



Germany is a wonderful country in daylight – but at nighttime: light pollution in the main square of Bonn.

We need light at night on streets and pavements, but it is not sensible to illuminate the sky, as this causes light pollution and damages our environment. In Europe every year more than 1,700 million* EUR worth of electrical energy in the form of light is dispersed straight into space in the form of outdoor lighting. The energy waste is enormous and unnecessary. A most worrying fact is that the use of energy for outdoor lighting along with light pollution has been increasing rapidly everywhere in Europe, in many states even more than 10% per year. A great part of electric power, which is used for illumination in Europe, is produced by thermal power plants, which are major producers of greenhouse gases. Over 1,700 million EUR unnecessarily wasted are not only a financial

loss – but harmful to the environment due to greenhouse gases. In thermal power plants they endeavour to achieve most effective burning of coal and every percent of useful efficiency means a great deal. Thermal power plants work with close to 100% useful efficiency by transforming coal into electric energy.

And what happens when the electric power that has been gained with great effort is led to the lamps for outdoor lighting? A great part of the light, often as much as 50%, is spilled upwards and hardly anyone is concerned about this shockingly high loss. Hardly anyone sees the problem of dispersing the energy gained with such great effort, simply to illuminate the sky!

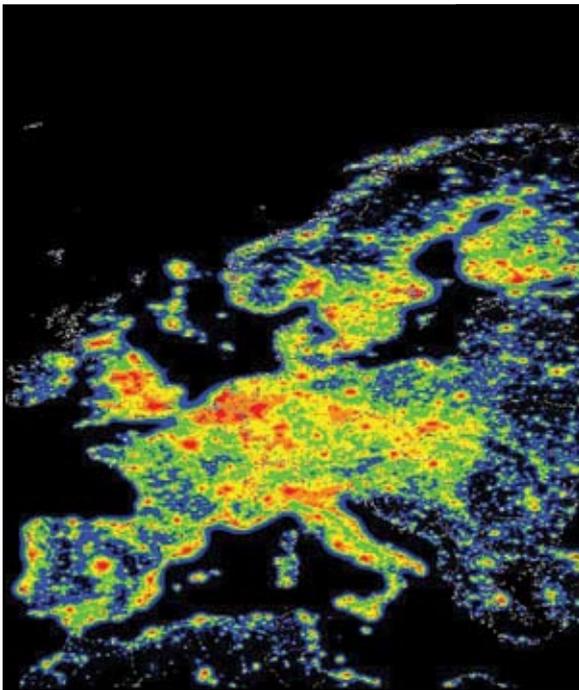


Croatia is a wonderful country in daylight – but at nighttime: all-sky photo of light pollution in Kanfanar, Istria. Photo Korado Korlević, Andrej Mohar.

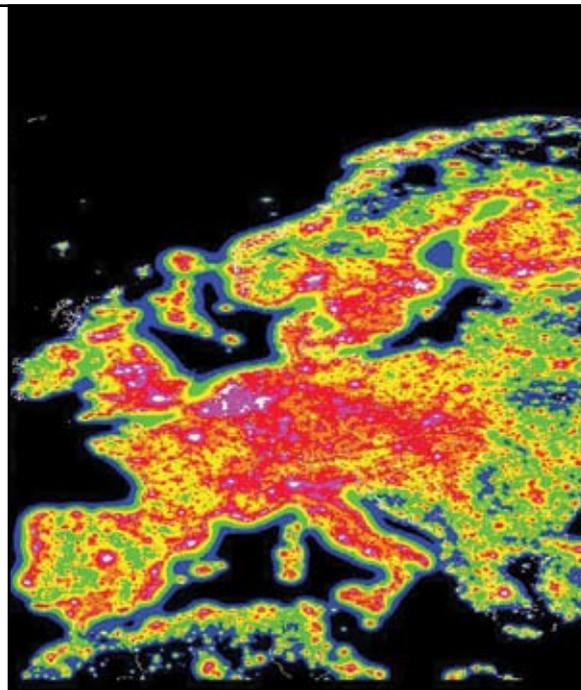
* Conservative estimate by Dark Sky Slovenia based on wasted energy and prices for 2007, ground based monitoring and satellite monitoring.

2. Banning the production and distribution of certain types of lamps

Are we finally going to realize that the use of some types of lamps should be forbidden in Europe, the same way as the production of cars without catalytic converters is forbidden? If we rely solely on the awareness of individuals, only a low percentage of aware individuals would drive environment-friendly cars. The same applies to the issue of outdoor lighting. The use of outdoor lighting must be regulated by law, as people's awareness alone is obviously not enough. The nighttime satellite shots of rapidly increasing light pollution confirm this.



Europe at night in 1998.



Europe at night in 2025 (forecast).

Cinzano, Falchi, Elvidge, United Nations Special Environmental Symposium, Vienna 1999.



Globe lamps direct only 40% of the light towards the ground and bar lamps only 50%. The rest is spilled into space. If a lamp is dirty the loss of energy may be as high as 80%. There are millions of such lamps in Europe. How long are we going to tolerate this?



3. European directive regarding the field of light pollution

At the conference the suggestion for a new European directive regarding light pollution is going to be presented, and the need to accept it as soon as possible will be clear. It is high time that in Europe light pollution becomes a priority task in the field of nature protection, decreasing the level of greenhouse gases, and energy saving.

This is also the reason for inviting important representatives of the Ministries of Environment from all European countries, as well as the Members of the European Parliament responsible for environmental issues, to the conference.

4. Light pollution, health, cancer and depression



A human being can survive without any food over 30 days, but cannot function normally after two days without sleep. Sleeping is very important, and turning night into day is by no means beneficial to health.

Recent researches regarding the problems of production of melatonin and the development of cancer will be presented at the conference. Melatonin is an essentially important hormone and antioxidant which prevents depression. Does the light pollution cause additional healthcare expenses? What is the role of light pollution in the constantly increasing number of people suffering from cancer and depression in Europe?

A person from Ljubljana, who has been 30 years exposed to the light of this streetlamp has recently died because of cancer. We will never know how far the light of this lamp influenced the development of illness.

5. The influence of light pollution on elderly people

The population in Europe is ageing. It is a well known fact that elderly people are particularly disturbed by glare, which is mainly caused by unshielded lamps. The unshielded lamps are also the main source of light pollution. Elderly people have the right to quality lives without the harmful glare.



6. Light pollution and road safety

A source of light pollution, unshielded lights are also a threat to traffic safety due to their glare. Illuminated advertisements, which are up to a hundred times brighter than the normally illuminated street, threaten road safety and cause light pollution. Why does advertising have the advantage over the road safety and health of Europeans?

Italy is a wonderful country in daylight – but at nighttime: light pollution in Centro residenziale, Bergamo. Photo Diego Bonata.



Speed and alcohol consumption are not the only causes of car accidents. The illuminated advertisement caused the loss of the lives of two young people in Slovenia a few weeks before this brochure was printed. Photo Jože Pobjič, Delo.



How many accidents are caused by the eye-catching illumination, illuminated advertisements and flood lamps (Picture), which misdirect the attention of drivers away from the road?

7. The influence of light pollution on animals and plants

Some animal species, particularly nocturnal ones, are dying out in Europe. Do we have the right to cause the extinction of millions of birds, bats, nocturnal butterflies and other species? What effect does light pollution have on agriculture?



Unshielded luminaires attract rare night-active species and cause the extinction of numerous animals.

8. Millions of night sky admirers can no longer see stars

The sky over Europe is so highly polluted by light that most city dwellers of Europe cannot see the Milky Way from their home. In Europe there is no single square meter of surface left where the starry sky would have its natural glow, without the artificial light. Even high in the French, Austrian and Swiss Alps the sky is light polluted. Every year Europe loses the sight of millions of stars which get lost in the increasingly polluted sky. Professional astronomers have difficulties working. Besides them, there are about 400,000 amateur astronomers in Europe, who are able to see fewer stars every year.

People are fascinated by space. If they cannot see the natural starry sky, it is the same as if they could never see a stream of clear water or a river. The starry sky is our natural heritage and we are responsible for protecting it for future generations.

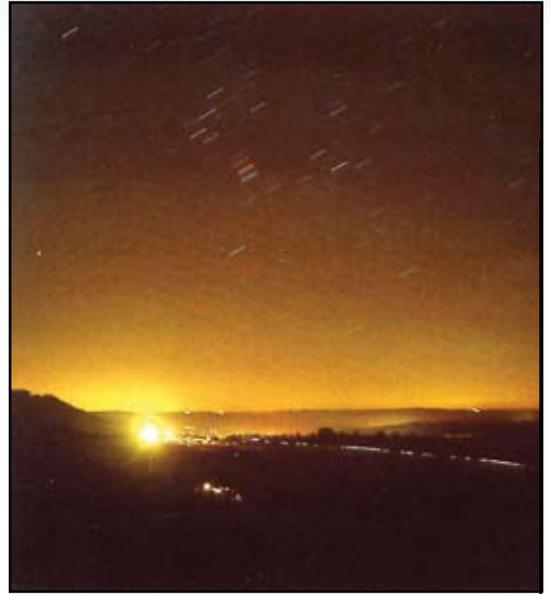


The sky above the observatory on Golovec hill in the south of Ljubljana. Such sky glow can be due to pollution, seen above most cities in Europe.

9. Destruction of the appearance of the landscape

In many countries the countryside and landscape still look wonderful. At least in the daytime. At night the lovely, romantic landscape turns into a landscape of glaring lamps, and the light pollution is starting to resemble that in the city.

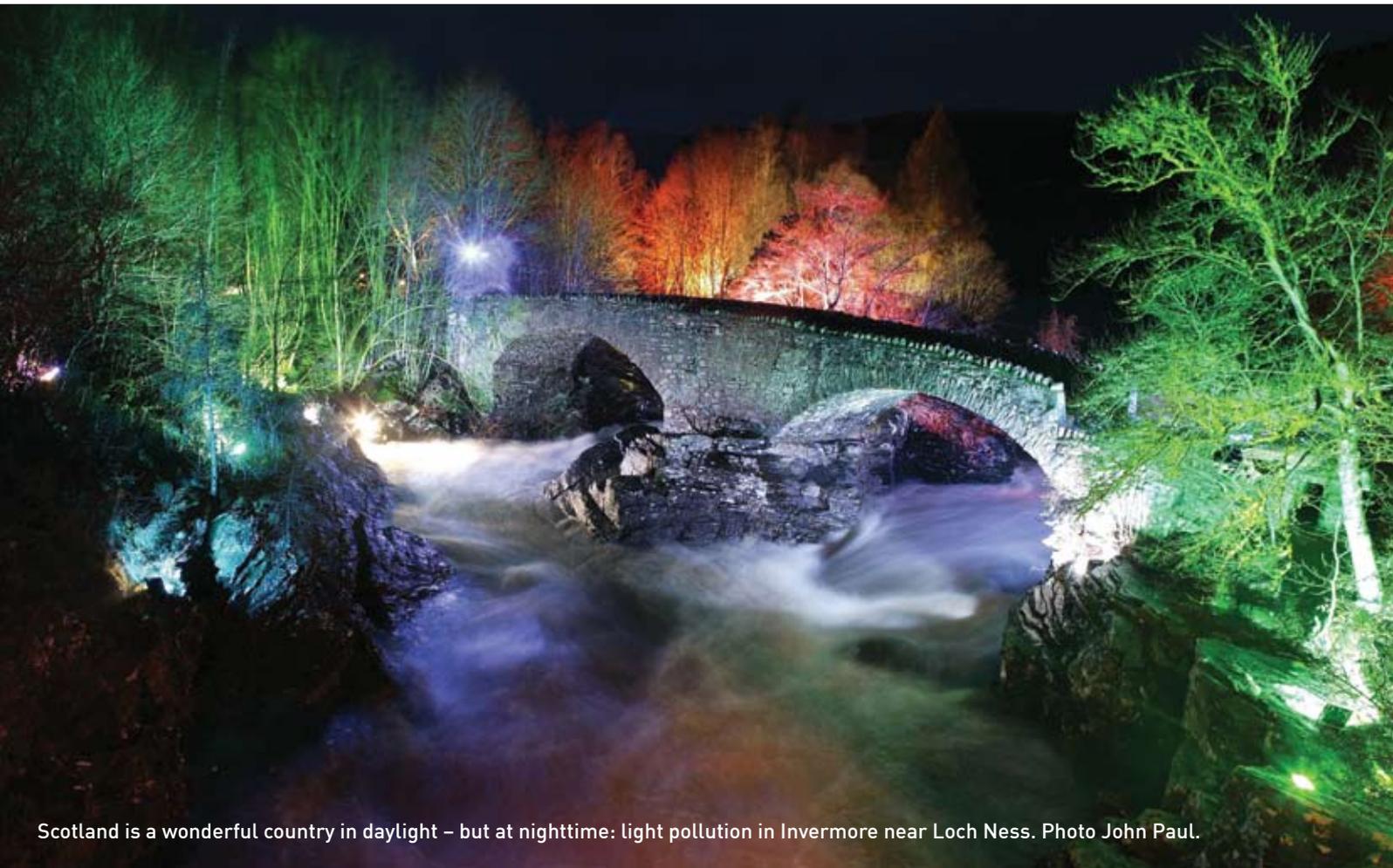
People do not do it intentionally, but out of ignorance. How can we change it?



England is a wonderful country in daylight – but at nighttime: light pollution in Peak District, Northern England. Photo Countryside Commission.



Belgium is a wonderful country in daylight – but at nighttime: light pollution at Mine Tower in Beringen. The illumination was partly sponsored by EU funds. Photo Eric Grosemans.



Scotland is a wonderful country in daylight – but at nighttime: light pollution in Invermore near Loch Ness. Photo John Paul.

10. How to lower the light pollution?

The lighting industry will not solve the problem, because they cause light pollution. They constantly invent new types of lamps, which are technically interesting, but most of them illuminate the sky. The lighting industry has a legitimate right to act like any other type of industry, which is, if possible, to grow without boundaries. Why would the lighting industry be any different? The aspiration towards infinite growth is clear:

More light More light More light



Slovenia is a wonderful country in daylight – but at nighttime: light pollution at a crossroads in Medvode. Photo Andrej Mohar.

The lighting industry cannot solve the problem of light pollution any more. At present the lighting industry is making thousands of models of lamps for outdoor lighting, of which 85 % are environmentally inappropriate, because they emit light into the night sky, cause glare and light pollution (based on a survey made at the world's largest lighting fair Light+Building, Frankfurt, 2006).

The industry can only adapt to the demands of the environmentalists, citizens and politicians. We are those who demand lamps which do not illuminate the sky! We

are those who want to save energy! We are those who do not want new thermal power plants to ensure even more light dispersing into space!

The conference is going to present clear solutions for reducing light pollution.

After the conference, it is time for politicians to put into effect appropriate regulations to minimize glare and protect the environment.

Light emissions above the horizontal plane are the main cause of light pollution and energy being wasted into space. The conference will give full support to those lighting industries and lighting engineers who follow the rule of 0 % light emissions above the horizontal plane. The best, environmentally friendly lights will be exhibited at the conference.

Expert Working Groups at the conference

Expert Working Group 1 (EWG-1): Energy efficient and Low Light Pollution Lighting Technology
Expert Working Group 2 (EWG-2): Light Pollution – Ground Monitoring
Expert Working Group 3 (EWG-3): Light Pollution – Satellite Monitoring
Expert Working Group 4 (EWG-4): Light Pollution and Human Health
Expert Working Group 5 (EWG-5): Light Pollution and Biology
Expert Working Group 6 (EWG-6): Light Pollution and Traffic Safety
Expert Working Group 7 (EWG-7): Light Pollution Laws
Expert Working Group 8 (EWG-8): Light Pollution and Finances

Local Organizing Committee

Andrej Mohar, Herman Mikuž, Dr. Tomi Trilar, Dr. Tomaž Zwitter, Dr. Igor Žiberna, Andrej Guštin, Jurij Dobravec, Lucija Grilec, Vanja Kolenc, Aljaša Jenko, Tina Hajdinjak, Simon Kaučič, Martin Čokl, Andrej Lap, Janez Kos, Ana Hočevar, Marjeta Keršič Svetel, Jure Atanackov, Jurij Stare

International Scientific and Organizing Committee

Dr. Thomas Posch	Austria	Dr. Pierantonio Cinzano	Italy
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Dr. Franz Kerschbaum	Austria	Dr. Diego Bonata	Italy
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Johan Vandewalle	Belgium	Alessandro Di Giusto	Italy
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Dr. Andreas Hänel	Germany	Dr. Tomaž Zwitter	Slovenia
Dr. Gerhard Eisenbeis	Germany	Dr. Tomi Trilar	Slovenia
Dr. Zoltan Kollath	Hungary		

Papers

The speakers are invited to prepare original papers on the conference topics. The paper abstracts will be evaluated and selected by the advisory board of the International Scientific and Organizing Committee (ISOC). Please send: abstract (1000 characters max.), speaker's name and full contact details, summary of the talk, very short bio of the speaker (for the conference website). The selected authors will be contacted by the International Scientific and Organizing Committee. After the conference, all the papers will be available on the conference website.

The official language of the conference is English.

Please submit abstracts to: Andrej Mohar,
andrej.mohar@tp-lj.si, tel. +386 1 477 66 43

Deadline for paper abstracts: 15th May, 2007



Bled

Location

The conference will take place in Bled, one of the most beautiful Alpine areas. Lake Bled with its island (and a church with a wishing bell!), the Bled Castle perched on a cliff above the lake, the surrounding forests and the view of the Alps make Bled and its surroundings one of the most beautiful natural pearls of Europe. The proximity of the Triglav National Park with its lush vegetation, fresh air, mild climate and a variety of activities and sights make Bled an attractive destination for the most demanding tourists – nature lovers. We therefore cordially invite all our conference participants to spend a few days before or after the conference relaxing in this magical part of the Alpine world.

Venue

The conference will take place in the Triglav National Park hall, Ljubljanska cesta 27, 4260 Bled, telephone: + 386 4 578 0200, www.tnp.si. In case of a large number of participants, a larger venue within walking distance will be provided.

For more information on Bled and its sights, please visit: www.bled.si

Sights/activities in Bled and its proximity:

- Bled Island
- Bled Castle
- walk around Lake Bled
- Vintgar gorge
- summer sled, golf, cycling, rowing, rafting/canoeing, canyoning, fishing, hiking, etc.

Sights/activities in the wider Bled area:

- Lake Bohinj (30 min by car, www.bohinj.si)



Bohinj

- Savica waterfall
- hikes to the Pokljuka plateau or nearby alps
- Vogel (1540 m, cable car access)
- Lipanca alp (1630 m)
- Viševnik mountain (2050 m)

Sights in the Triglav National Park and its surroundings:

- visit to the Peričnik waterfall in the Vrata valley and a hike to the Vrata valley cottage, with the panorama of the Triglav North Face,
- tourist and skiing resort Kranjska gora
- Zelenci, the spring of the Sava river
- Planica, the world's largest hill ski jump (world record 239 m)



Horsehead and Flame Nebula. Photo Jurij Stare.

Conference trip / observation:

Friday, 5 October, 2007, astronomical observations at the darkest point in Slovenia, 1680 m above sea level, 1h drive from the conference venue. In case of rain, an alternative trip will be organised.

Post-conference trip / observation (optional):

Sunday, 7 October, 2007, astronomical observations at one of the darkest points in Europe, Nockbergs National Park, Austria, about 2h drive from the conference venue, with the highest point of the road at 2042 m above sea level. <http://en.nockalmstrasse.at/index.htm> The trip is not included in the conference price.

For both observations, several large telescopes (up to 14 inch / 36 cm diameter) as well as large binoculars will be available.

The conference will feature an **exhibition of quality lighting** as well as an **exhibition of light pollution photography and astrophotography**.

Weather

The expected day temperatures in Bled are between 18 and 23°C. During the mountain expeditions, however, the night temperatures can sometimes drop below freezing; therefore, warm clothing/footwear, caps, gloves, scarves are recommended.

Accommodation

Bled is an excellent destination since most of the hotels are only minutes away from the conference venue. The following hotels are recommended:

Golf Hotel ****

Park Hotel ****

Lovec Hotel ****

Kompas Hotel ****

Astoria Hotel ***/****

Golf Suites (Apartmaji Golf) ***

For more information and prices, please visit www.bled.si

Apartments and b&b's

There are numerous high-quality suites, b&b's and private rooms available. The prices start at 30 EUR per person. For more information and prices, please visit www.bled.si

The best way of booking accommodation is by contacting the Kompas Bled tourist agency www.kompas-bled.si, which helps you book the accommodation of your choice regardless of the price range.

Participation fees

Regular participants (early registration): 240 EUR/person.

Late registration (after 15 August 2007): 290 EUR/ person.

Regular participants are lighting engineers, architects, people from the local governmental and environmental offices, etc.

IDA members and Dark Sky activists (sponsored participation fees) single participant: 36 EUR/person.

Please contact your local Dark Sky Organisation for special group and travel discounts.

Dark sky activists and environmentalists who need a visa to travel to EU-27 states: 10 EUR / person.

Late registration (after 15 August, 2007) please add: 10 EUR / person.

Banquet Dinner (last evening, optional): 20 EUR.

The participation fee includes the participation at the conference and exhibitions, refreshments and trip/ expedition. The prices include VAT.

Please send cheques to:

Euromix, Teslova 30, 1000 Ljubljana, Slovenia

or transfer money to the following account number:

Bank: Nova Ljubljanska banka d.d., SI-1520 Ljubljana

Swift: LJBASI2X, Account: 02010-0011272142,

IBAN: SI56020100011272142, VAT No: SI78067588

Travel

Most information is available in English at www.bled.si.

By plane

The Ljubljana International Airport (Brnik) is only 36 km from Bled.

Adria Airways has good connections with all major European cities (www.adria-airways.com). At early reservations, EasyJet (www.easyjet.com) offers flights from London to Ljubljana for only 33 EUR.

From the airport, Bled can be reached by bus (Brnik-Kranj-Bled, Mon-Sat only); the price is 5.4 EUR. The fastest option is by taxi (35 EUR) or van for several persons (45 EUR). The taxis can be booked at: darko.marolt@telemach.net, mobile phone: +386 41 953 505.

By car

Bled is 40 min from Ljubljana, 90 min from Trieste (Italy), 1h from Klagenfurt (Austria). The car, of course, allows you more flexibility; to find out how to make your trip cheaper, contact your local Dark Sky organisation.

Currency

Slovenia is a member of the EU, with the euro as the official currency. Currencies can be exchanged at the airport or at banks.

Visa

For entering Slovenia, an ID card is required if you are a citizen of the EU or Croatia. For other states please check if a passport or visa is required.

Safety

Slovenia is considered one of the safest European countries.

Website

Official conference website: www.darksky2007.si



Organisers

Temno nebo Slovenije (Dark Sky Slovenia)

Testlova 30
1000 Ljubljana
Slovenia
www.temnonebo.org



tel. +386 1 477 66 43
fax +386 1 426 45 86
mobile phone: +386 41 738 411 (Andrej Mohar)
e-mail: andrej.mohar@tp-lj.si

Euromix

Testlova 30
1000 Ljubljana

Triglavski narodni park (Triglav National Park)

Ljubljanska cesta 27
4260 Bled
tel. +386 4 5780200
www.tnp.si



Ustvarjalno astronomsko društvo (Creative Astronomical Society)

www.uad.si

7th European Symposium
for the Protection of the Night Sky,
Bled, 5-6 October 2007

Application Form

You can attach your business card here

PLEASE USE CAPITAL LETTERS ONLY

Family name: _____ First name: _____

Title: _____

Company / Organisation: _____

Job position: _____

Address 1: _____

Address 2: _____

Postcode: _____ City: _____

State: _____

E-mail: _____

Telephone: _____

Fax: _____

- My job is:
- Lighting engineer
 - Lighting manufacturer
 - Architect
 - Government official
 - Dark-sky activist
 - Other, please specify _____

Sponsored participation fee (Dark-sky activist):

- 36 EUR
- 36 EUR + 20 EUR Banquet Dinner
- Dark Sky Society will pay for me

Regular participant:

- 240 EUR
- 240 EUR + 20 EUR Banquet Dinner

Please send Application Form to:

- By post: Euromix, Teslova 30, SI-1000 Ljubljana, Slovenia, or
- By fax: +386 1 426 45 86.

Your message to organizers: _____

Date:

Signature:

An Application Form for those who really care!

Sponsors