

# Report on 2007 activities of the Czech Section of the International Dark Sky Association

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## 1 Introduction

Let's remember our main info in English is at [www.astro.cz/darksky](http://www.astro.cz/darksky) and Section reports are within [amper.ped.muni.cz/light/ida](http://amper.ped.muni.cz/light/ida) – please find even the present one there if you are reading its printed version, as there are many hyper-links from the document. As in the years before, Czech section made no financial operations, being but a collaborating group of people.

## 2 New texts

Continuing an effort mentioned in the report for the year 2006, a basic set of texts summarising the rules for good outdoor lighting has been written. They describe how any lighting should be made to server well, to have the best efficiency and to cause minimum harm. The texts point to some new technologies (like using glass which almost does not reflect light) which should help to adhere to that goal. There are five documents:

- proposed introduction to the EuP streetlighting study (not adopted by the [www.eup4light.net](http://www.eup4light.net) team),
- a text explaining in detail, what is the light pollution indeed and how it is to be described and measured (the first version of the text was written in 2006 already),
- an overview of effective legislation and its basic features,
- an explanation, which luminaire parameters are really important,
- a description of advantages and technologies of luminaires which don't shine anywhere upwards.

Developing contacts with the founder of light engineering in Slovakia, prof. Horňák, we've made accessible the whole set of his recent texts on Slovak outdoor lighting (in Slovak).

For several municipalities, I've made an evaluation of the present state of their outdoor lighting, basing on digital imaging photometry. Recommendations for improvements were included too. At the moment, the evaluations are not publicly accessible (they should be opened to public within 2008). However, a concise set of rules to be obeyed, as prepared for these municipalities, is available as <http://amper.ped.muni.cz/light/rules.pdf>.

In Czech, a study on lighting of public buildings has been released, as an item within a larger project, see item 9 within a Green Office project Kompas site. A shorter one on lights on wind turbines was included in a conference on the environmental aspects of these power plants.

## 3 Meetings, legislation

The peak of 2007 activities was the preparation of the European symposium held in Slovenian town Bled, Light Pollution and Global Warming and a participation there (together with a Slovak colleague Pavol Ďuriš). The texts and images I used for the five short speeches I held on the Symposium are in a directory <http://amper.ped.muni.cz/light/lectures/ds2007>. One of my speeches presented a paper A Rationale for the Mandatory Limitation of Outdoor Lighting by Dr. Barry Clark, its full contemporary version, extended later during autumn quite a lot, is within <http://amper.ped.muni.cz/bajc> – I believe it to be the world's best summary of the issue, with many up-to-date references.

The Symposium site was very appropriate, as the legislation valid in Slovenia since September 22 is one of the best ones in the world, being almost as good as that in the eight Italian provinces (and perhaps even better in some its facets). At a national level, this is the first effective legislation in the world. See ev. <http://amper.ped.muni.cz/light/Slovenia>. To introduce a similarly effective legislation in Czechia, an updated 2007 proposal based on a series of the preceding ones has been made available within [http://amper.ped.muni.cz/light/zakon\\_oo/2007](http://amper.ped.muni.cz/light/zakon_oo/2007).

As a Czech section leader, I took part at the Bruxelles IDA meeting in September, becoming one of the founding members of IDA Europe, a new NGO which is indispensable as a tool and representative for any influential negotiations on the EU level.

Back to the Bled Symposium theme and name, I spent a huge amount of time to finish good Czech translations of Summaries for Policymakers (SPMs), as they appeared in the four parts of the Fourth Assessment Report of the IPCC, see <http://www.ipcc.ch> or [http://amper.ped.muni.cz/gw/ipcc\\_cz](http://amper.ped.muni.cz/gw/ipcc_cz) – in the latter directory, editable versions of figures are available as well. The Czech version of the SPM of the Synthesis Report is still, as I see within <http://www.ipcc.ch/ipccreports/translations.htm>, the only non-English one being available (I've published its first version on Nov 28 already, twelve days after the English original). I urge another section leaders, and all IDA activists, to study this single Summary at least: it is so evident that electricity consumption growth is to be stopped and reversed. Artificial lighting is the most visible manifestation of wasteful habits of our civilisation. Any fossil fuel saved thanks to switching most of lights off, or at

least dimming them a lot, would increase our chances of avoiding the worst consequences of future climate change. *Any saving now is much more important than the same saving twenty years later.* Outdoor lighting offers the best opportunities for that. Of course, the absurdly high light levels recommended by the standards (within their top lighting categories) should be rarely or never applied, to achieve the needed (huge) power savings. Sustainable development implies dark night environment – naturally dark, or as close to that as feasible. Similarly as with car traffic, if we won't achieve a profound change of the current development trends within EU and USA, there is little prospect that China and India will develop sustainably. EU and US lighting is a horrible example for them, even with all possible improvements in the geometry of light emissions. There is no “free electricity” in regions attached to a power grid. All what we save means less fossil carbon being oxidised (just fossil power stations output is or should be reduced with lower grid load, the non-fossil generators, making less or no harm, run at full all the time they can). Burning carbon for non-vital purposes is a sin... Climate protection through lighting reduction is the bottom line of the above mentioned paper by Barry Clark, after all.

## 4 Expert education of activists

Around the time of Bled Symposium, I've devoted a lot of effort to the enlightenment of our own folks, namely the leaders of IDA sections. The archive of the leader's conference is not publicly accessible (and should not become to be before perhaps a decade lapses), but some advice and commentaries by me are made available within <http://amper.ped.muni.cz/jenik/letters/radiometry> and <http://amper.ped.muni.cz/darksky/a>.

In Czechia, we had an excellent workshop (short after the European IDA Symposium). It took place in Pardubice, thanks to an organisational effort by Pavel Suchan, the (mostly voluntary) staff of the public observatory in Pardubice and the Pardubice Technical services. Apart from the two-day discussion, Milan Ryšán, director of the outdoor lighting division of the Technical services, took us to a trip through the evening town, explaining all the details of the lighting system. I took some photometric images, these still wait to be processed however...

## 5 Software development and application

During the spring assessments of outdoor lighting of several municipalities, but also in the autumn, I've further developed a programme for imaging digital radiometry/photometry. The programme, raw2lum, began to be employed by Belgian colleagues and else-

where. I've evaluated some scenes for Jan Kondziolka, who leads an outstanding series within *Instantní astronomické noviny*, called *On the lighting (O svícení)*. For all stuff concerning this software, as well as the published results, see directory <http://amper.ped.muni.cz/light/luminance/>. It includes a subdirectory “PV” with sky monitoring over *Kráví hora*, the site of the N. Copernicus Observatory and Planetarium in Brno (still the only accessible one in the world... as far as I know); that directory can be accessed through a short <http://amper.ped.muni.cz/weather/> as well.

Another software development concerned a visualisation of an illuminance of the ground by selected luminaires. I've computed such overviews for many thousands of luminaires in winter. In October, I've added a possibility of an automated selection of suitable luminaire types, proper for a given configuration of posts and surfaces to be illuminated. The basic tool for that is an extended programme *ies2tab*, supplemented by a series of linux (bash) scripts. All that is available within <http://amper.ped.muni.cz/light/ies2/> directory. In October, I've written an English introduction to the topic, [http://amper.ped.muni.cz/light/ies2/EasyLight-SaveTheSky/ch\\_best.htm](http://amper.ped.muni.cz/light/ies2/EasyLight-SaveTheSky/ch_best.htm). An example of an optimised luminaire selection is given (in Czech) within [this](#) and [this](#) letter to the mayor of Ostopovice. The smallest selection of luminaires is here, as mentioned at the end of the heading of the first, largest luminaire selection (which shows a light distribution of an opal globe as its first item, offering a telling comparison). The municipality has installed such luminaires in 2008 indeed, with very positive reactions from its citizens.

## 6 Public enlightenment in Czech

“Light as a bad master” was a theme of many of my lectures during 2007 (including some at universities). I wrote a short newspaper text *Úhel pohledu na noční Brno*. A photometric analysis of one Brno site is (with a proposal of decent architectural lighting) is here. Pavel Suchan gave another lectures, Jan Kondziolka wrote (with Pavel Suchan and Pavol Ďuriš, eventually) a lot of articles even outside his own huge series, e.g.:

[http://www.rozhlaz.cz/veda/technologie/\\_zprava/397749](http://www.rozhlaz.cz/veda/technologie/_zprava/397749),  
<http://www.ekolist.cz/nazor.shtml?x=2069693>,  
<http://www.ekolist.cz/nazor.shtml?x=2061916>,  
<http://www.ekolist.cz/nazor.shtml?x=2047627>,  
<http://www.ekolist.cz/nazor.shtml?x=2041069>,  
<http://www.ekolist.cz/nazor.shtml?x=2035008>,  
<http://www.priroda.cz/clanky.php?detail=968>,  
<http://www.national-geographic.cz/veda-a-vesmir/konec-tmy-nad-ceskou-krajinou-1589/>