# photobiologySun Version 0.1.2
# Catalogue of Solar Spectra

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## 1 Introduction

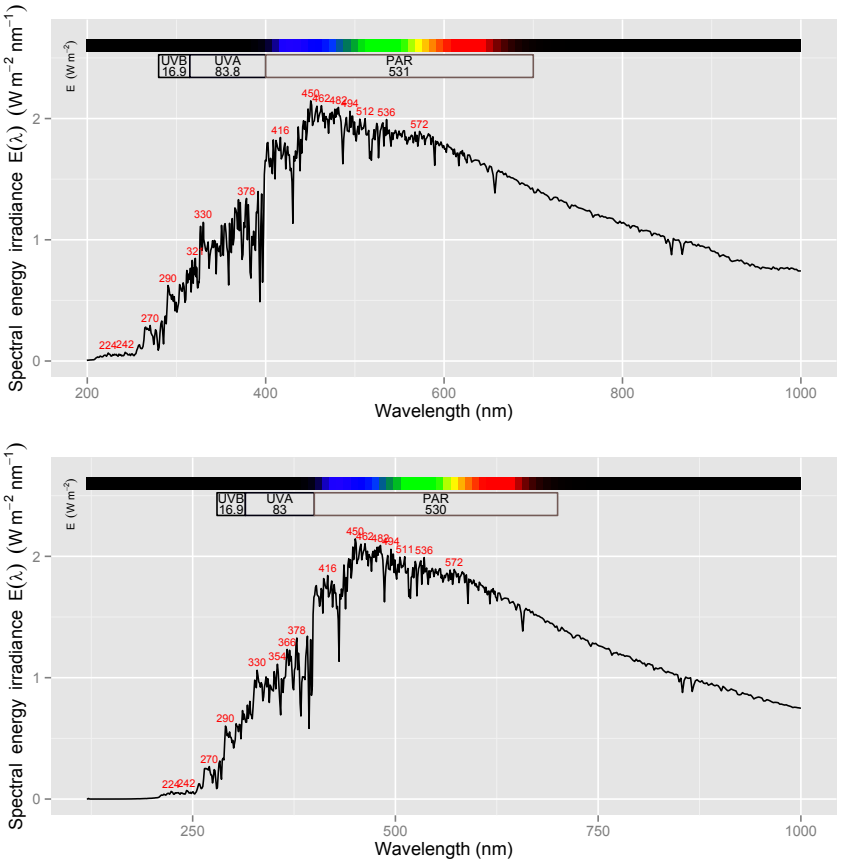
We will plot the emission spectra of the different lamps for which data is provided in the pacakge. We plot side-by-side the lamp output as spectral energy irradiance and as spectral photon irradiance. All spectra are normalized to an area of one under the whole curve.

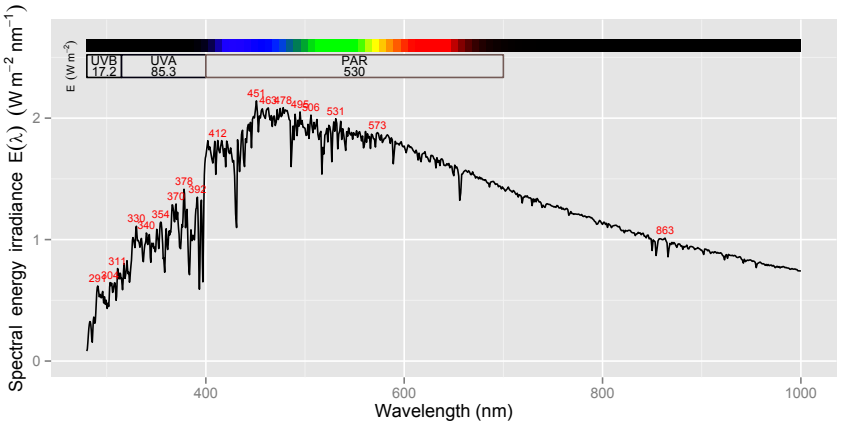
```
library(ggplot2)
library(photobiology)

## Loading required package:  lubridate
## Loading required package:  data.table
##
## Attaching package:  'data.table'
##
## The following objects are masked from 'package:lubridate':
##
##    hour, mday, month, quarter, wday, week, yday, year
##
##
## Attaching package:  'photobiology'
##
## The following object is masked from 'package:data.table':
##
##    rbindlist

library(photobiologySun)
library(photobiologygg)

## Loading required package:  photobiologyWavebands
## Loading required package:  proto
## Loading required package:  splus2R
## Loading required package:  plyr
##
## Attaching package:  'plyr'
##
## The following object is masked from 'package:lubridate':
##
##    here
```

We define a function to do the actual plotting so as to not repeat code, and to make changes easier in the future.

## 2 Extraterrestrial solar spectra

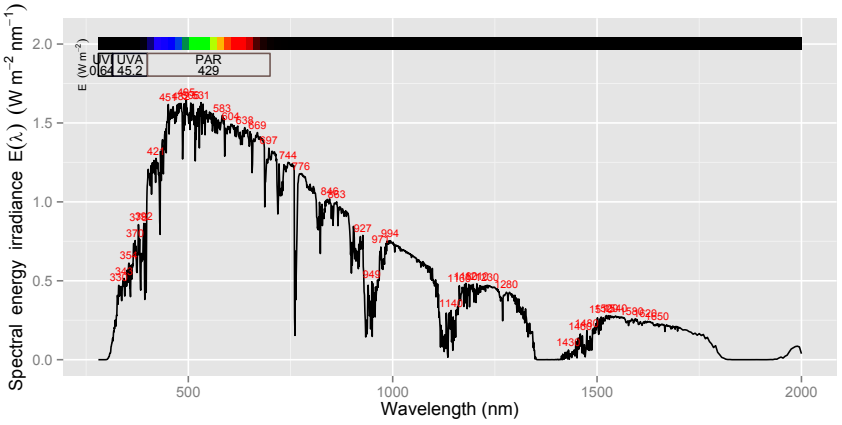
```
plot(trim_spct(WMO_Wehrli_AM0.spct, high.limit=1000))
plot(trim_spct(ASTM_E490_AM0.spct, high.limit=1000))
plot(trim_spct(Gueymard_AM0.spct, high.limit=1000))
```

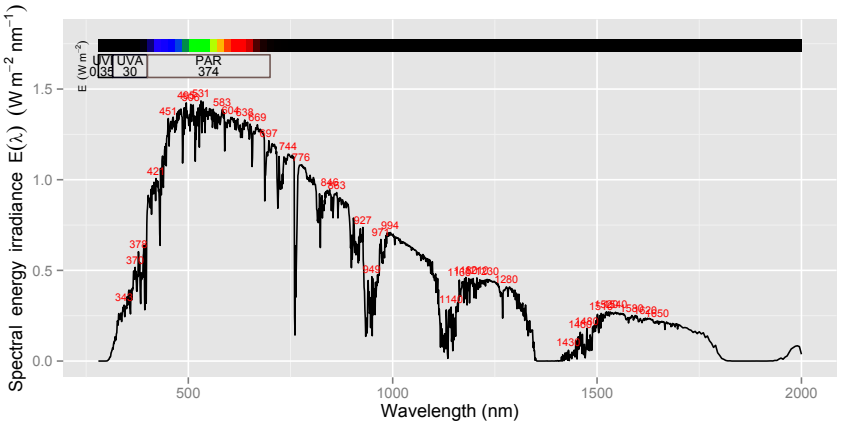




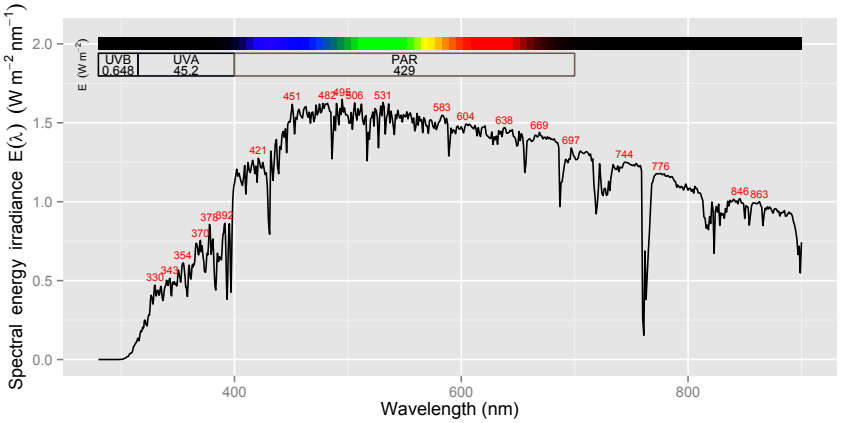

# 3 Standard terrestrial solar spectra

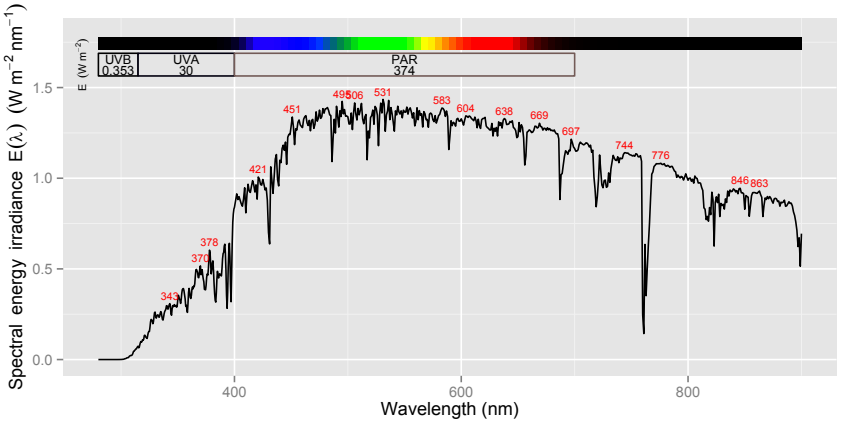
```
plot(trim_spct(ASTM_G173_direct.spct, high.limit=2000))
plot(trim_spct(ASTM_G173_global.spct, high.limit=2000))
```






```
plot(trim_spct(ASTM_G173_direct.spct, low.limit=250, high.limit=900))
plot(trim_spct(ASTM_G173_global.spct, low.limit=250, high.limit=900))
```



# 4 Measured dayligh spectra

```
plot(sun_May_morning.spct)
```