UV monitoring in Florence

IBIMET/LaMMA Consortium

Experimental field to study the effect of UVB increase on plants (1994)

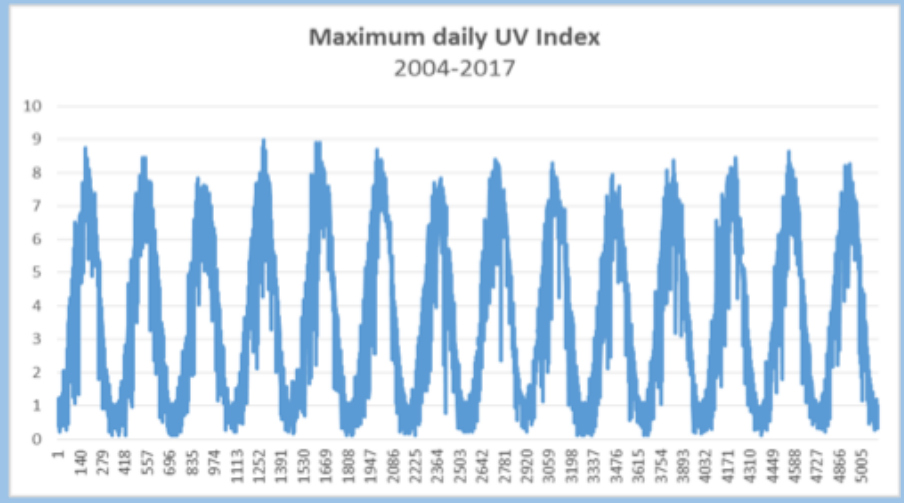
COST Action 713: UVB Forecasting (1996 – 2001)
COST Action 726: Long term changes and climatology of UV radiation over Europe (2004-2009)
COST Action: UV4GROWTH

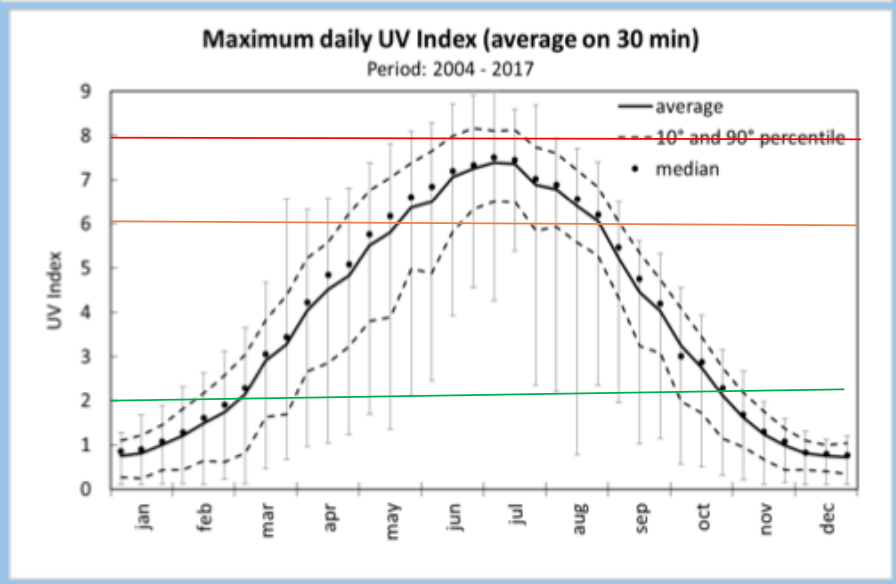
Calibration

One of our instruments partecipated to the intercalibration at World Radiation Center (WRC) in Davos: 2006, 2017

Solar Light 501
Spectral response close to Erythema

Monitoring





Calibration

Example of calibration matrix obtained from Davos calibration center calibration centre. Each coefficient is specific for Stratospheric Ozone value and Solar Zenith Angle. It is performed botha a spectral and an angular calibration.

TO3 / SZA	200	220	240	260	280	**300**	320	340	360	380	400	420	440	460	480	500
0	1.081	1.063	1.048	1.036	1.025	1.017	1.011	1.005	1.001	0.998	0.996	0.995	0.995	0.996	0.997	0.999
5	1.080	1.062	1.047	1.035	1.025	1.017	1.010	1.004	1.001	0.998	0.996	0.995	0.995	0.996	0.997	0.999
10	1.078	1.060	1.045	1.033	1.023	1.015	1.009	1.004	1.000	0.997	0.996	0.995	0.996	0.996	0.998	1.000
15	1.074	1.057	1.042	1.031	1.021	1.014	1.008	1.002	0.999	0.997	0.996	0.996	0.996	0.997	0.999	1.001
20	1.069	1.052	1.038	1.027	1.018	1.011	1.006	1.001	0.998	0.996	0.996	0.996	0.997	0.999	1.001	1.004
25	1.062	1.046	1.033	1.023	1.014	1.008	1.003	0.999	0.997	0.996	0.996	0.997	0.999	1.001	1.004	1.007
30	1.054	1.039	1.027	1.018	1.010	1.005	1.001	0.998	0.997	0.997	0.998	0.999	1.002	1.005	1.008	1.012
35	1.046	1.032	1.021	1.012	1.006	1.002	0.999	0.997	0.997	0.998	1.000	1.003	1.006	1.010	1.015	1.020
40	1.036	1.023	1.014	1.007	1.003	**1.000**	0.999	0.998	0.999	1.002	1.005	1.009	1.013	1.018	1.024	1.030
45	1.026	1.015	1.008	1.003	1.000	1.000	1.000	1.001	1.004	1.008	1.013	1.018	1.024	1.031	1.038	1.045
50	1.016	1.008	1.003	1.001	1.001	1.002	1.005	1.008	1.013	1.018	1.025	1.032	1.040	1.048	1.057	1.066
55	1.008	1.004	1.002	1.002	1.005	1.009	1.014	1.019	1.027	1.035	1.044	1.053	1.063	1.074	1.084	1.095
60	1.004	1.003	1.005	1.009	1.015	1.023	1.031	1.040	1.050	1.061	1.073	1.085	1.097	1.110	1.123	1.137
65	1.006	1.010	1.017	1.025	1.036	1.047	1.060	1.072	1.086	1.100	1.115	1.131	1.146	1.162	1.178	1.195
70	1.018	1.029	1.041	1.056	1.071	1.088	1.105	1.122	1.140	1.159	1.178	1.197	1.217	1.236	1.255	1.275
75	1.049	1.067	1.087	1.108	1.130	1.153	1.176	1.197	1.221	1.245	1.268	1.292	1.316	1.339	1.362	1.385
80	1.108	1.135	1.164	1.193	1.223	1.252	1.282	1.309	1.338	1.367	1.395	1.423	1.451	1.478	1.504	1.530
85	1.210	1.246	1.283	1.320	1.356	1.392	1.427	1.458	1.492	1.524	1.557	1.588	1.618	1.647	1.676	1.704
90	1.281	1.316	1.352	1.388	1.424	1.460	1.495	1.525	1.559	1.593	1.625	1.657	1.687	1.717	1.746	1.774

The periodical calibration of such radiometer represent a critical point for this type of measurements. It is suggested to repeta a calibration every year because the spectral response of the used filters is very sensible to the useage time

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UV Index monitoring in Europe

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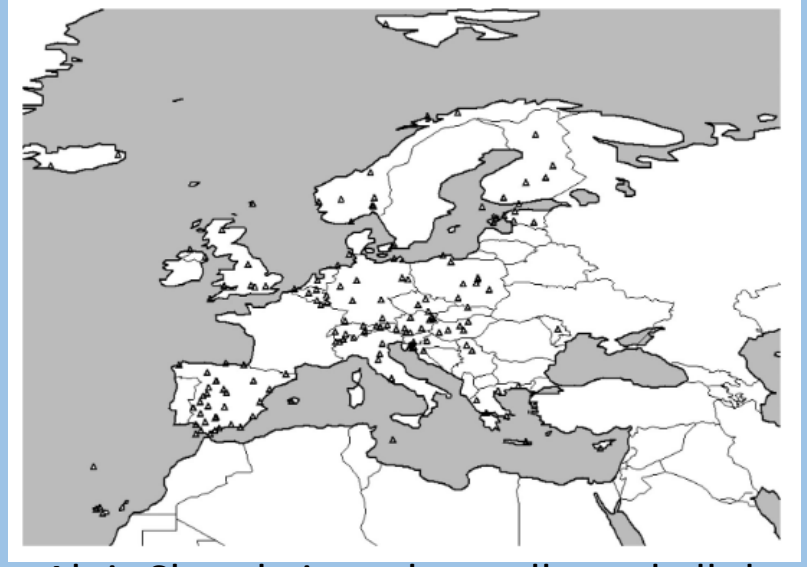

In a recent paper Alois Shmalwieser has collected all the locations where uv is monitored in Europe. Now his intention is to collect all real time data in a common web page. In September it will be held a conference in Wien (UV MONITORING IN EUROPE) were also this point will be discussed. In that occasion also a standardization of the measurements will be considered.

Characterization of UV radiative regime

snow

construction site

quarry

beach

vineyards

Together with Tuscany Region and with the Institute for Cancer Prevention we are partecipating to some activity to inform occupational doctors to prevent UV damage in Outdoor Workers.