

Site forecast for paragliders and hang gliders



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Frequently used abbreviations

UTC	Universal Time Coordinated
MSL	Height above sea level <i>[Mean Sea Level]</i>
GND	Height above ground <i>[Ground]</i>
FL	Flight level - height above a pressure level of 1013,25 hPa in standard atmosphere <i>[Flight Level]</i> Example: FL100 corresponds to 10.000 ft above the pressure level of 1013,25 hPa
VFR	Visual Flight Rules
m	Meter <i>[100 m correspond to 328 ft]</i>
ft	Feet <i>[100 ft correspond to 30,48 m]</i>

Title

- ▶ Location of forecast
- ▶ Starting day of forecast
- ▶ Reference height
- ▶ Sunrise and sunset in UTC

Los Castillejos — Th, 09.12.10 — 0 - 500 m, reference 0 m — 07:20 ☀ 17:07									
UTC	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
Solar radiation [W/m²]	210	370	470	510	500	420	290	90	

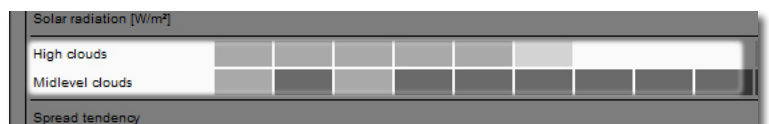
Insolation

- ▶ Solar radiation in Watt per m²
- ▶ On a typical middle European summer day midday values are around 1000 W/m²
- ▶ A grey November day shows values around 100 W/m²

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Clouds

- ▶ Information about the optical thickness (vertical extend) of layer clouds
- ▶ High clouds
 - Ice clouds (normally above 7000 m MSL)
 - Cirrus
- ▶ Midlevel clouds
 - e.g. Altocumulus



- ▶ Vertical extend in four categories:
 - ☐ Non-existing or very weak
 - ☐ Weak
 - ☐ Medium
 - ☐ Strong

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Spread and Cumulus cover

- ▶ Tendency of the Cumulus to spread in the upper level due to an inversion
- ▶ Cumulus cover in octas

Midlevel clouds									
Spread tendency									
Octas of Cumulus	3/8	6/8	4/8	5/8	6/8	6/8	6/8	6/8	6/8
Cumulus top [m MSL]									

- Weak spread
- Medium spread
- Strong spread

Cumulus tops, flight top and mean climb

- ▶ Upper extend of Cumulus clouds in m above MSL
- ▶ Base of Cumulus or blue thermals in m above MSL
- ▶ Estimated lift in a paraglider in m per second

Octas of Cumulus				
Cumulus top [m MSL]	1,100	1,300	1,100	
Flight top [m MSL]	600	1,000	1,200	1,000
Mean climb [m/s]	0.3	0.2	0.7	0.5

PFD - Potential Flight Distance

- ▶ Hourly distance gain in km
- ▶ Input parameters are e.g. insolation, soil type, vegetation type, thermal strength and height
- ▶ This value is a **benchmark** only
- ▶ Computed for a paraglider
- ▶ Computed for a hang-glider (Atos)

Mean climb [m/s]				
PFD (paraglider) [km]	11	10	7	5
PFD (hang-glider) [km]	21	19	13	10
Dist. between thermals [km]				

- ▶ **Paraglider**
 - ◻ Windspeed in excess of 25 km/h have a negative effect on the distance
 - ◻ Windspeed in excess of 50 km/h means PFD = 0 km
- ▶ **Hang-glider**
 - ◻ Windspeed in excess of 30 km/h have a negative effect on the distance
 - ◻ Windspeed in excess of 50 km/h means PFD = 0 km

Distance between thermals

- ▶ Average distance in km between thermals

PFD (hang-glider) [km]	17	21	27	25	19
Dist. between thermals [km]	6	6	6		
Weather conditions					

Wind

- ▶ Reference height is either
 - ◻ MSL
 - ◻ GND
- ▶ In mountain regions no values are displayed if the forecast height is less than the reference height

Wind 2.000m MSL [km/h]	270°/42	270°/38	270°/35	265°/35	265°/36	265°/38	260°/38	260°/36	260°/34
Wind 1.500m MSL [km/h]	245°/53	245°/52	245°/50	245°/45	245°/39	240°/35	235°/37	235°/40	235°/40
Wind 1.000m GND [km/h]	270°/41	270°/36	270°/34	265°/34	265°/36	265°/37	260°/37	260°/35	260°/33
Wind 500m GND [km/h]	260°/55	250°/54	250°/52	250°/49	250°/44	245°/39	245°/40	240°/41	240°/41

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Weather conditions and precipitation

- ▶ Significant weather conditions displayed by standard symbols
- ▶ A Cumulus symbol on days without frontal activity indicates thermal activity with Cumulus clouds
- ▶ Precipitation in mm per hour

Dist. between thermals [km]										
Weather conditions	''	''	☁	☁	☁	☁	☁	☁	☁	☁
Total precipitation [mm/h]					0,3	2,6	0,4	4,1		
Wind 2.600m MSL [km/h]	265°/26	260°/25	260°/26	255°/30	260°/32	255°/32	250°/31	250°/30	250°/29	

- ☁ Light showers
- ☁ Moderate showers
- ☁ Heavy showers
- ☁ Showers of rain and snow
- ☁ Heavy sh. of rain and snow
- ☁ Snow shower
- ☁ Heavy snow showers
- '' Drizzle
- Light rain
- Moderate rain
- Heavy rain
- Sleet
- Heavy sleet
- * * Light snowfall
- * * Moderate snowfall
- * * Heavy snowfall
- 🌀 Freezing rain
- 🌀 Heavy freezing rain
- ☁ Cumulus humilis
- ☁ Cumulus congestus
- ☁ Cumulonimbus calvus
- ☁ Cumulonimbus
- ☁ Light thunderstorms
- ☁ Moderate thunderstorms
- ☁ Heavy thunderstorms

Dewpoint

- ▶ The dewpoint is defined as the temperature at which condensation occurs
- ▶ Spread is defined as the difference between air temperature and dewpoint at ground level
- ▶ In standard weather conditions the Cumulus base can be calculated from the spread using the following formula:
- ▶ $(\text{temperature [2m]} - \text{dewpoint [2m]}) * 125 = \text{Cumulus base in meter GND}$

Temperature [2m]	10.3°C	11.9°C	13.3°C	14.4°C	15.2°C	15.8°C	15.7°C	14.6°C	13.6°C
Dew Point Temp. [2m]	-0.7°C	0.5°C	4.7°C	6.8°C	7.4°C	7.4°C	7.8°C	8.9°C	9.5°C
Rel. humidity [2m]	46%	45%	58%	60%	60%	57%	59%	68%	76%

Base of data

- ▶ Regional numerical weather simulation model, processed at our weather computing centre
- ▶ Hourly forecasts
- ▶ High update frequency - four model runs per day