

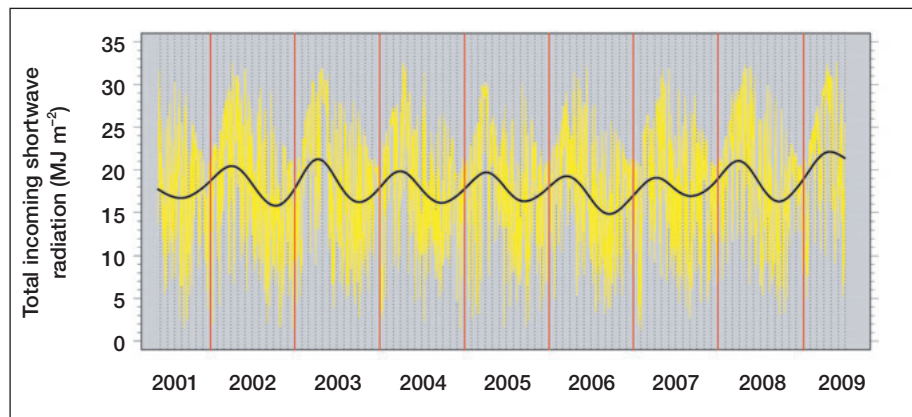
WebTable 1. Summary of half-hourly hydroclimatic observations collected by the automated station on Nevado de Colima, Mexico, from hour 0000 on 22 May 2001 to hour 1200 on 1 July 2009 (a total of 142 201 records over a period of slightly more than 8 years)

| Variable | n | Mean | Standard deviation (SD) | Minimum | Maximum |
|---|--------|--------|-------------------------|---------|---------|
| Total incoming shortwave radiation (MJ m ⁻²) ¹ | 142195 | 0.38 | 0.56 | 0.00 | 2.48 |
| Barometric pressure (hPa) ² | 109728 | 654.53 | 1.52 | 644.70 | 659.50 |
| Maximum air temperature (°C) ³ | 142186 | 6.31 | 3.76 | -12.28 | 19.94 |
| Minimum air temperature (°C) ³ | 142186 | 5.20 | 3.45 | -12.68 | 17.56 |
| Maximum soil temperature (°C) ⁴ | 136353 | 8.84 | 3.56 | 0.79 | 18.83 |
| Minimum soil temperature (°C) ⁴ | 136353 | 8.74 | 3.53 | 0.75 | 18.80 |
| Soil water volume (%) ⁵ | 128915 | 19.44 | 4.54 | 7.7 | 41.20 |
| Total precipitation (mm) ⁶ | 137468 | 0.07 | 0.48 | 0.00 | 20.32 |
| Maximum relative humidity (%) ⁷ | 134251 | 70.83 | 26.51 | 2.65 | 100.00 |
| Minimum relative humidity (%) ⁷ | 134156 | 62.81 | 28.18 | 0.46 | 100.00 |
| Wind speed (km h ⁻¹) ⁸ | 141850 | 5.97 | 3.33 | 0.31 | 80.16 |
| Wind gust (km h ⁻¹) ⁹ | 141768 | 16.23 | 9.00 | 1.13 | 87.23 |
| Wind direction (°) ¹⁰ | 142195 | 58.60 | 42.63 | 0.00 | 360.00 |
| SD of wind direction (°) | 142195 | 38.52 | 15.96 | 0.00 | 80.80 |

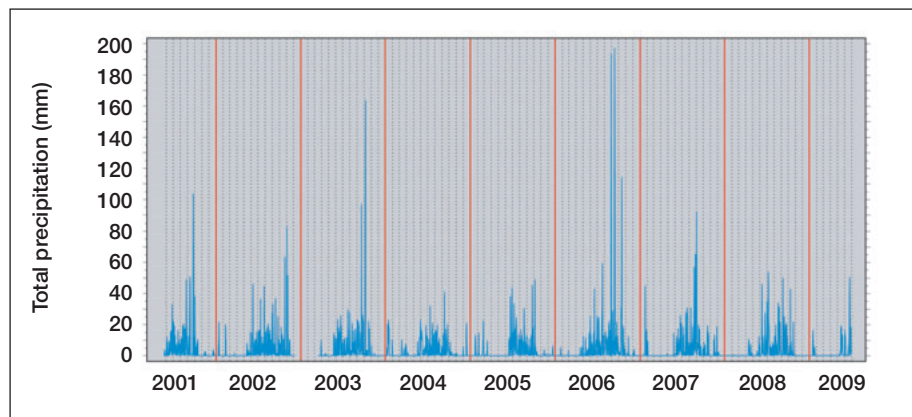
Notes: ¹Two half-hour intervals in April 2002, and four half-hour intervals on 23 Mar 2004, were missing all observations, so that the maximum value of records is 142 195. ²Missing data from 9:30 am (local time) on 31 Mar 2002 until 2:30 pm on 6 Jun 2002. A few missing values in 2003 (4 total), 2004 (6 total), 2005 (54 total), and 2006 (47 total). The instrument stopped working at 10:30 am on 2 Nov 2007. ³Maximum values exceeded minima by more than 8°C (up to 13.3°C) in the afternoon of 26 Jun 2009 (9 total). Missing values were only those mentioned in footnote 1, during April 2002 (2 total) and 23 Mar 2004 (4 total). ⁴Continuously missing data from 6:30 am on 16 Nov 2002 until 4:00 pm on 16 Mar 2003. Additional missing values occurred at 10:30 am on 17 Nov 2001, in April 2002 (2 total), on 23 Mar 2004 (4 total), and on 26 Jun 2009 (10 total). Maximum values exceeded minima by more than 0.6°C in 2002 (3 total, up to 2.7°C), in 2003 (44 total, up to 7.1°C), twice in 2005, and once each in 2006 and 2007 (up to 0.8°C). ⁵Missing or off-range observations from 7:00 pm on 28 May 2003 until 5:30 pm on 23 Mar 2004. A few more missing values in 2001 (3 total) and 2002 (5 total). ⁶Missing data from 5:30 am on 8 Dec 2002 until 4:00 pm on 16 Mar 2003. Other missing values were those mentioned in footnote 1, during April 2002 (2 total) and 23 Mar 2004 (4 total). One missing value in 2007. ⁷Missing or off-range observations were continuous from 7:30 am on 13 Oct 2003 until 5:30 pm on 23 Mar 2004. Additional maximum and minimum values were missing or off-range in 2002 (2 total), 2003 (146 total), on 27 Jan 2008 (2 total), and on 26 Jun 2009 (3 total). Minimum relative humidity was also missing in 2001 (21 total), 2003 (32 total), on 26 Nov 2006 (2 total), in January 2008 (17 total), and in June 2009 (23 total). ⁸Off-range observations were more frequent during the winter; data were missing in 2002 (117 total), 2003 (8 total), 2004 (135 total), 2005 (84 total), and 2007 (7 on 25 Jan). ⁹Usually off-range values coincided with those of wind speed. Additional wind gust observations were missing in 2001 (8 total), 2002 (19 total), 2003 (6 total), 2004 (26 total), 2005 (6 total), 2006 (5 total), 2007 (4 total), 2008 (7 total), and 2009 (2 total). ¹⁰Missing values were only those mentioned in footnote 1, during April 2002 (2 total) and 23 Mar 2004 (4 total). We computed summary values (mean direction, circular variance) using circular statistics, and expressed those values according to the geographical convention (ie angles are measured clockwise starting from the up-vertical, north direction).



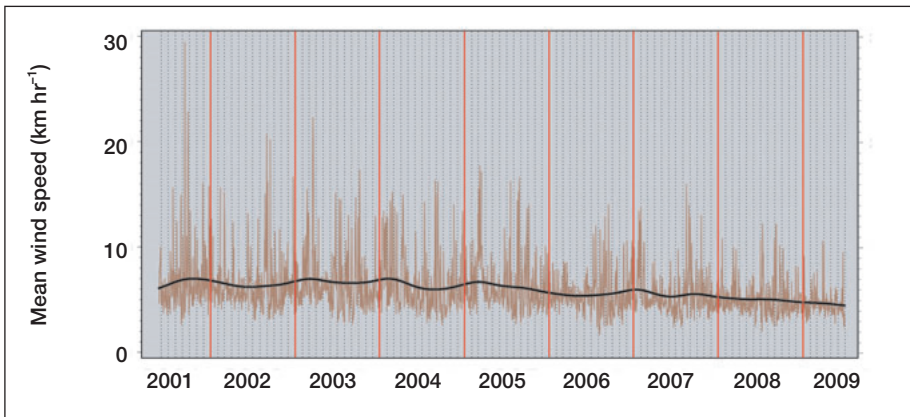
WebFigure 1. The Nevado de Colima automated weather station photographed on 15 Nov 2008. The barb wire was put in place by the Nevado de Colima National Park in 2001, shortly after the station was installed, and has been quite effective at protecting the sensors from cattle that graze freely in the area.



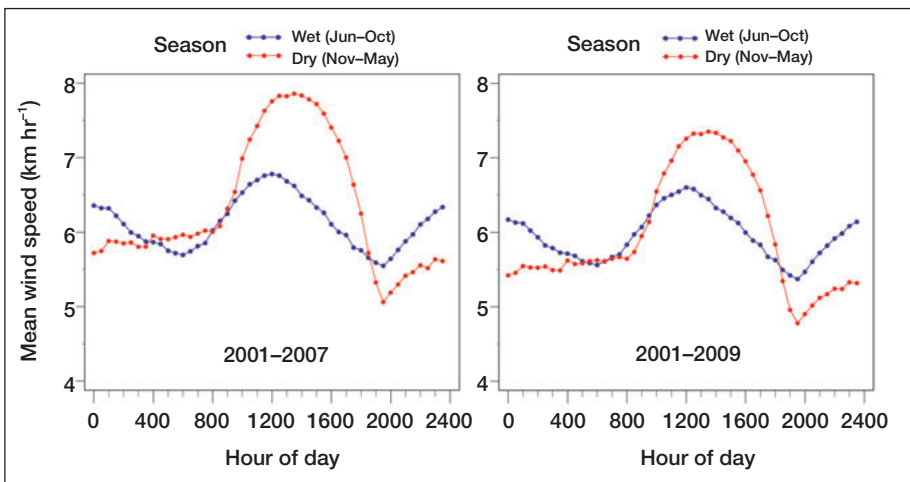
WebFigure 2. Daily insolation received at the site, showing a relatively stable pattern over time, together with a spring peak followed by a pronounced reduction caused by the summer monsoon clouds. A cubic smoothing spline (black curve) with a 50% frequency response of 365 days (Cook and Peters 1981) was used to represent long-term trends. Dotted vertical lines mark the beginning of each month, and red solid lines show the start of each year.



WebFigure 3. Daily total precipitation received at the site, showing the length of the summer monsoon wet season (June–October) and of the winter dry season (November–May), together with large interannual fluctuations (from 971 mm in 2005 to 1771 mm in 2006) but no clear trend. Dotted vertical lines mark the beginning of each month, and red solid lines show the start of each year.



WebFigure 4. Daily mean wind speed, showing decline in both average and extremes over time. A cubic smoothing spline (black curve) with a 50% frequency response of 365 days (Cook and Peters 1981) was used to represent long-term trends. Dotted vertical lines mark the beginning of each month, and red solid lines show the start of each year.



WebFigure 5. Diel cycle of mean wind speed, showing a pronounced early afternoon peak during the dry winter season, whereas the wet summer monsoon season is characterized by two lower peaks at about midday and midnight. Values computed using the entire period of record (2001–2009) as compared with those without the last two years (2001–2007) indicate a wind slow down, especially for the early afternoon maximum in winter, corresponding to the time of maximum air temperature, which has therefore increased.