

Wind Analysis Of Northern Yucatan Coast for Kiteboarding

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Introduction <https://youtu.be/v7-fZ8MjRwA>



Figure 1: Northern Yucatan Coast

Motivation

- Find the windiest season in the northern Yucatan shore
- Categorize according to wind ranges suitable for small, medium and large kites
- Use 5 years of wind data from 2012 to 2016
- CINESTAV Telchac (IYUCATNT2) weather station data is used
- Information is gathered from the web using Weather Underground website

Data Sources

Location of Station IYUCATNT2



Data Summary

Records read: 1740, Missing: 87, Readings: 329115

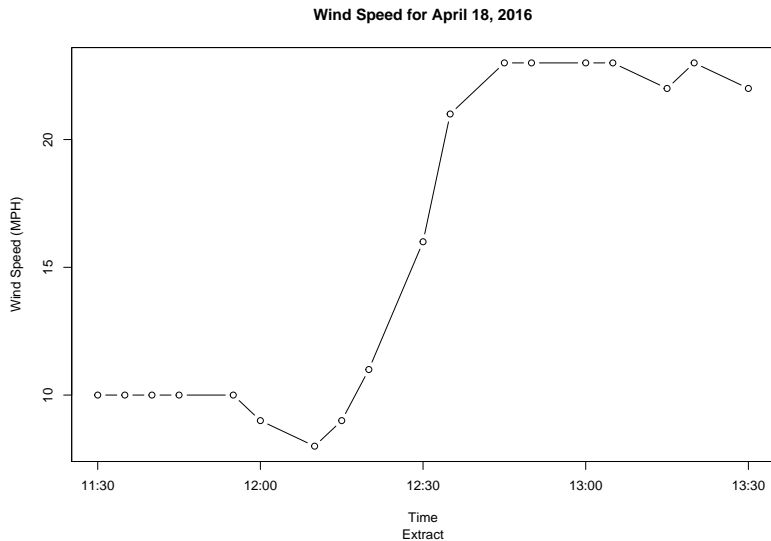
Time	WindDirection	WindDirectionDegrees	WindSpeedMPH	WindSpeedGustMPH
2016-04-18 00:00:00	East	101	7	7
2016-04-18 00:05:00	ENE	70	7	12
2016-04-18 00:15:00	East	82	10	11
2016-04-18 00:20:00	East	87	9	14
2016-04-18 00:30:00	East	100	6	6

Time	WindDirectionDegrees	WindSpeedMPH	WindSpeedGustMPH
Min. :2012-01-01 00:04:00	Min. :-737280	Min. :-999.900	Min. :-999.00
1st Qu.:2013-05-28 00:32:30	1st Qu.: 51	1st Qu.: 5.000	1st Qu.: 4.00
Median :2014-08-22 06:20:00	Median : 91	Median : 9.000	Median : 10.00
Mean :2014-08-09 17:35:51	Mean : -1936	Mean : 9.342	Mean : -90.73
3rd Qu.:2015-11-10 01:11:00	3rd Qu.: 128	3rd Qu.: 15.000	3rd Qu.: 15.00
Max. :2016-12-31 23:52:00	Max. : 32767	Max. : 41.000	Max. : 46.00

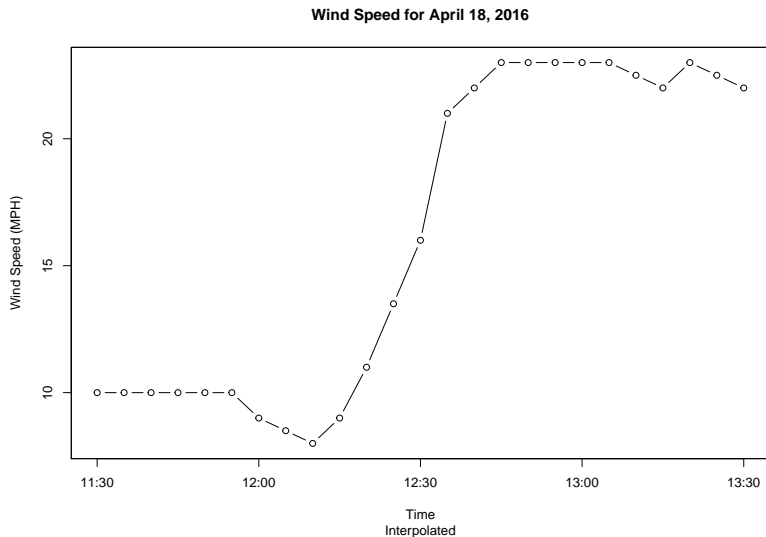
Data Cleanup

Condition	Action
WindDirectionDegrees < 0	Convert to NA
WindDirectionDegrees > 360	Convert to NA
WindSpeedMPH < 0	Convert to NA
WindSpeedGustMPH < 0	Convert to NA
duplicated(Time)	Delete

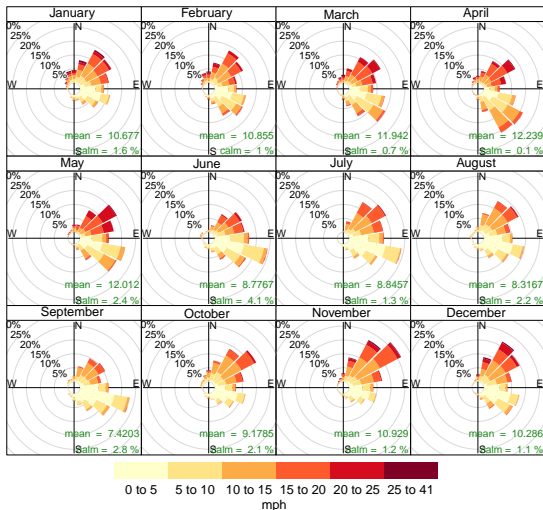
Original Data



Interpolated Data

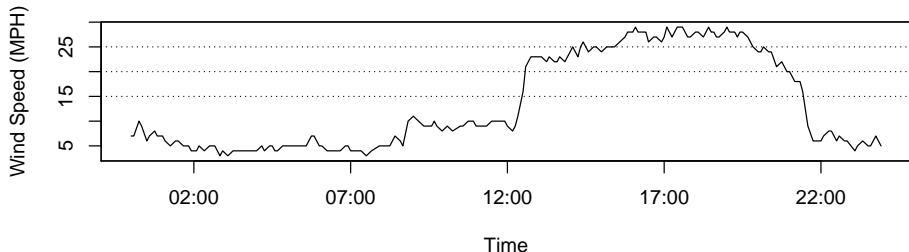


Clean Data Wind Rose



Daily Summary

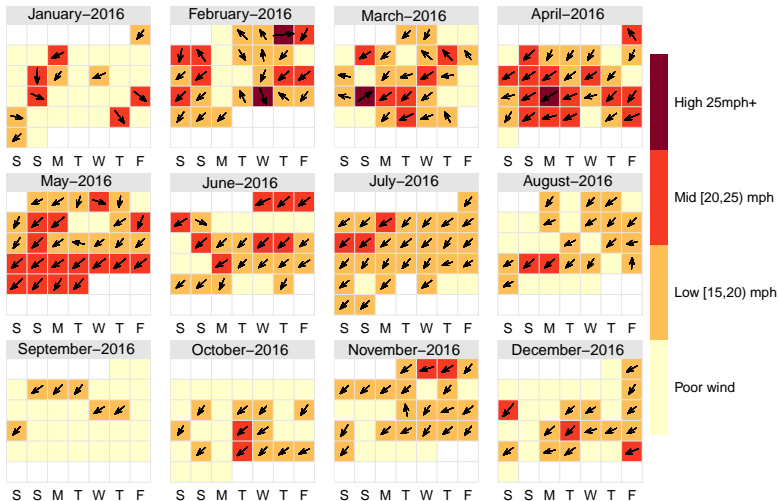
Wind Speed for April 18, 2016



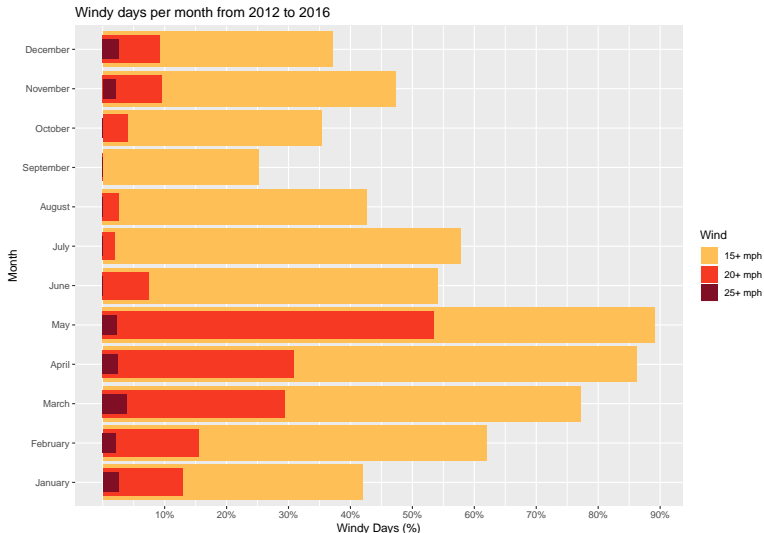
- Only daylight readings are taken into account
- At least 2 hours of consistent wind required
- Label a day according to its highest sustained wind
- If the day is good get the average speed and direction of the windy period

Calendar Plot

Kiting days in 2016



Monthly Report



Conclusion

- Best wind days are during May (Almost 90%)
- Second Best are April & March
- Highest winds were in March
- Safe bet to take a medium (9m) & large (12m) kites