

The Wind-Gust Limit

M. Franz, April 21, 2022

The main limit to operations from wind is related to the amount of torque, necessary to counteract the effect of wind not on the telescope, but the dome. Winds from the direction opposite the pointing/tracking azimuth of the dome can actually be the most troublesome. This is because of the size of the shutter halves, the shutter being larger than standard for a seven meter Observa-Dome, due to the aperture of the VATT primary. If the wind is not directly “behind” the open shutter, it becomes quartering, with more force being applied to one side than the other. This condition is almost inevitable during gusty conditions.

For this reason, the gust limit is 30 knots. Period. This is stated on the operating-limits placard, as a “Hard Limit”. The observer is not at liberty to surmise the degree or duration of over- or even at-limit gust conditions that are safe for operations. The abrasive strip that the dome-drive tires ride on has actually been torn from the steel surface, due to excess torque applied to the dome-drive wheels during operations over the wind limit.

Whenever the system records gusts over 30 knots it is mandatory to close. Since the system records peak gusts over 10 minute periods, it is wise to wait twenty minutes before re-opening, and then to do so **only** if there are no more 30+ knot gusts recorded during the two 10-minute intervals, recorded by the Weather Dashboard. Unfortunately, if more 30+ knot gusts are recorded, one must close again.

In windy conditions, it is best to keep the telescope closed and keep a close watch on the weather console (above and to the right of the monitor that is used to operate the telescope). Often, the readout there will catch gusts that the web-based dashboard misses. Sometimes, the wind is simply too high, and that must be accepted.

It would be very much appreciated if the wind-gust limit is **strictly respected at all times**, and the necessary cautionary action taken consistently.

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Last update: **2022/04/21 22:40**

