



# Strong East Wind Events in the Sierra and Tahoe Basin

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# Flying about Reno/Tahoe and the Sierra...



RNO UUA /OV RNO 5NW/TM 1855/FL085/TP DH8D/RM LLWS +/- 10KTS ON SHORT FINAL 085-SFC DURD Rotor action. Aircraft almost rolled at 085



# What keeps me awake at night....



Very localized bursts of high intensity wind

March 10th, 2014 - EF2 (111-137 mph)  
like tornado damage near RNO



# Impacts - Aviation and beyond

Less common than the typical W and SW wind events



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ensuinganarchy  
@ensuinganarchy

Replying to @nplareau @NWSReno and @NWSSacramento

Was very bad off hwy 50 at about 6700 ft trees falling everywhere had to use ham radio 805 placerville reapter to get help with chainsaw3  
Last night made it off the mountain at 3 am

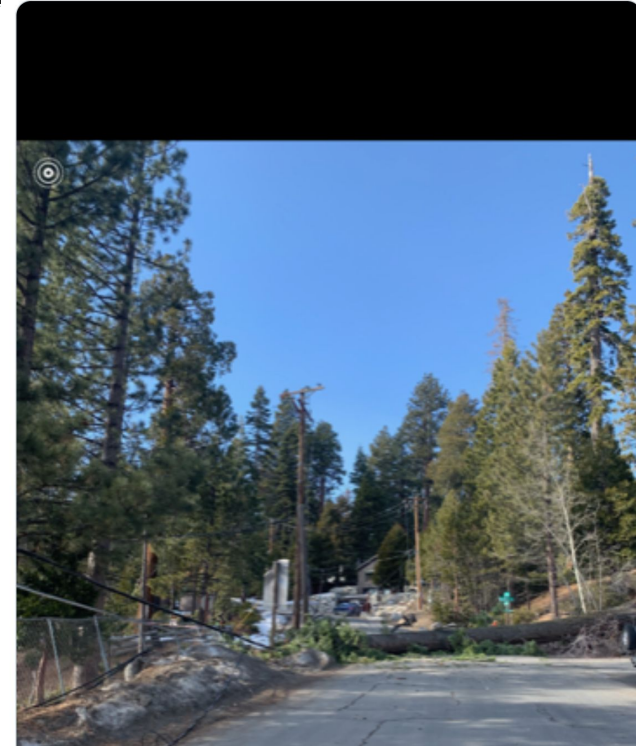


10:17 AM · Feb 10, 2020 · [Twitter for Android](#)



Liberty Utilities  
@LibertyUtil\_CA

Big tree from across the road has caused the power outage In Tahoe City. Crews are working to restore power as quickly as possible.







# Science + History

*Dec. 1<sup>st</sup>, 2011 Northeast Wind Event:  
Devil's Postpile Tree Blowdown*

This was an unusually strong northeast wind event that mostly affected Tahoe and Mono County. Devil's Postpile National Monument had a huge blowdown, and there were numerous trees down in South Lake Tahoe.

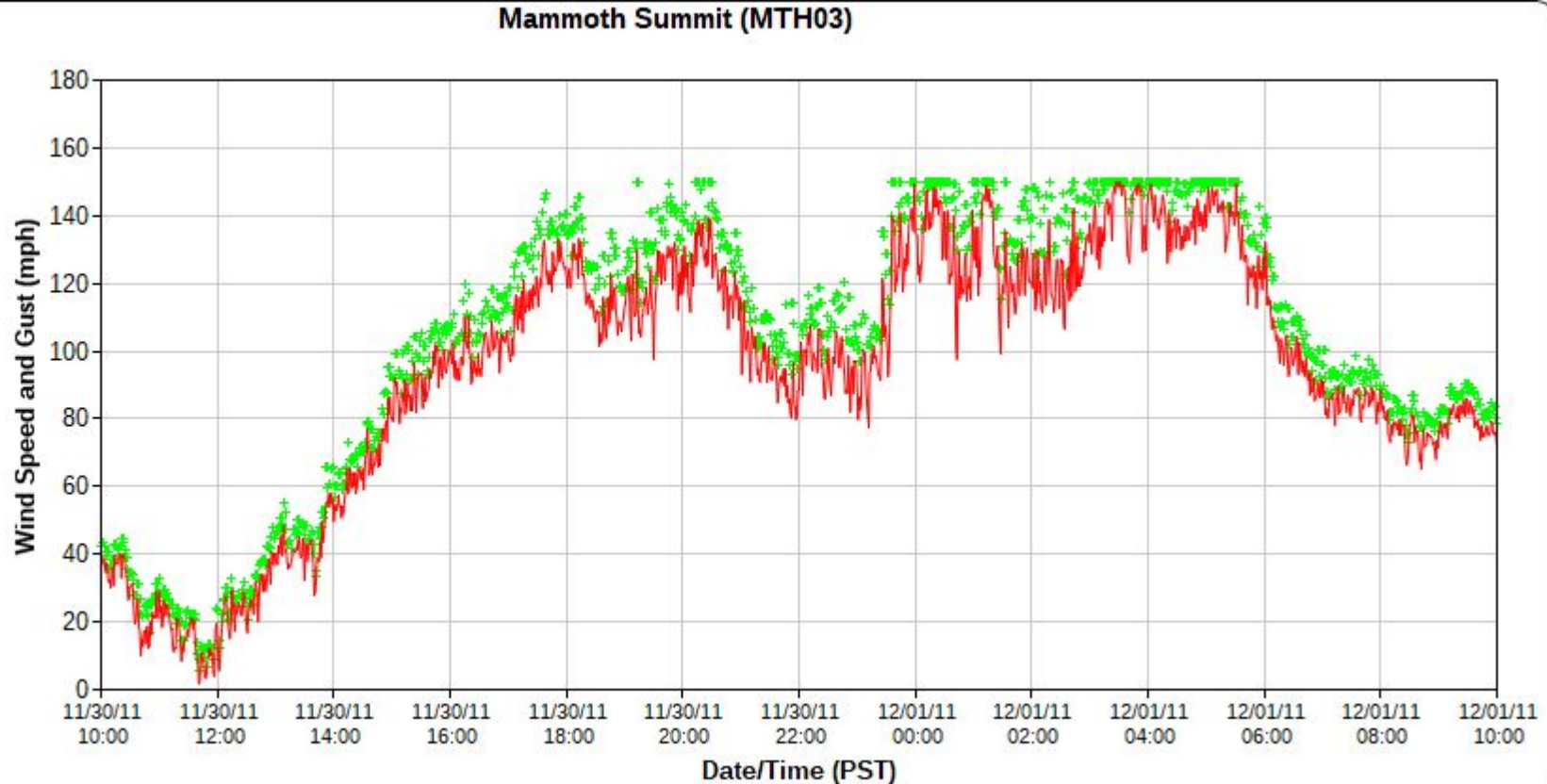


## Past Easterly Wind Events on Mammoth Mountain Summit

Date	Sustained Wind	Wind Gust
Dec 1, 2011	150 mph	150 mph*
Dec 11, 2007	102 mph	127 mph
Nov 21, 2004	70 mph	120 mph
Oct 28, 2009	92 mph	120 mph
Jan 5, 2007	90 mph	112 mph
Nov 29, 2004	87 mph	110 mph
Oct 13, 2008	90 mph	105 mph

*\* Equipment at the time was capped at 150 mph. Gusts were estimated at 150-200 mph during this event.*

# Mammoth Mtn Dec 1, 2011 - Wind reporting capped at 150 mph



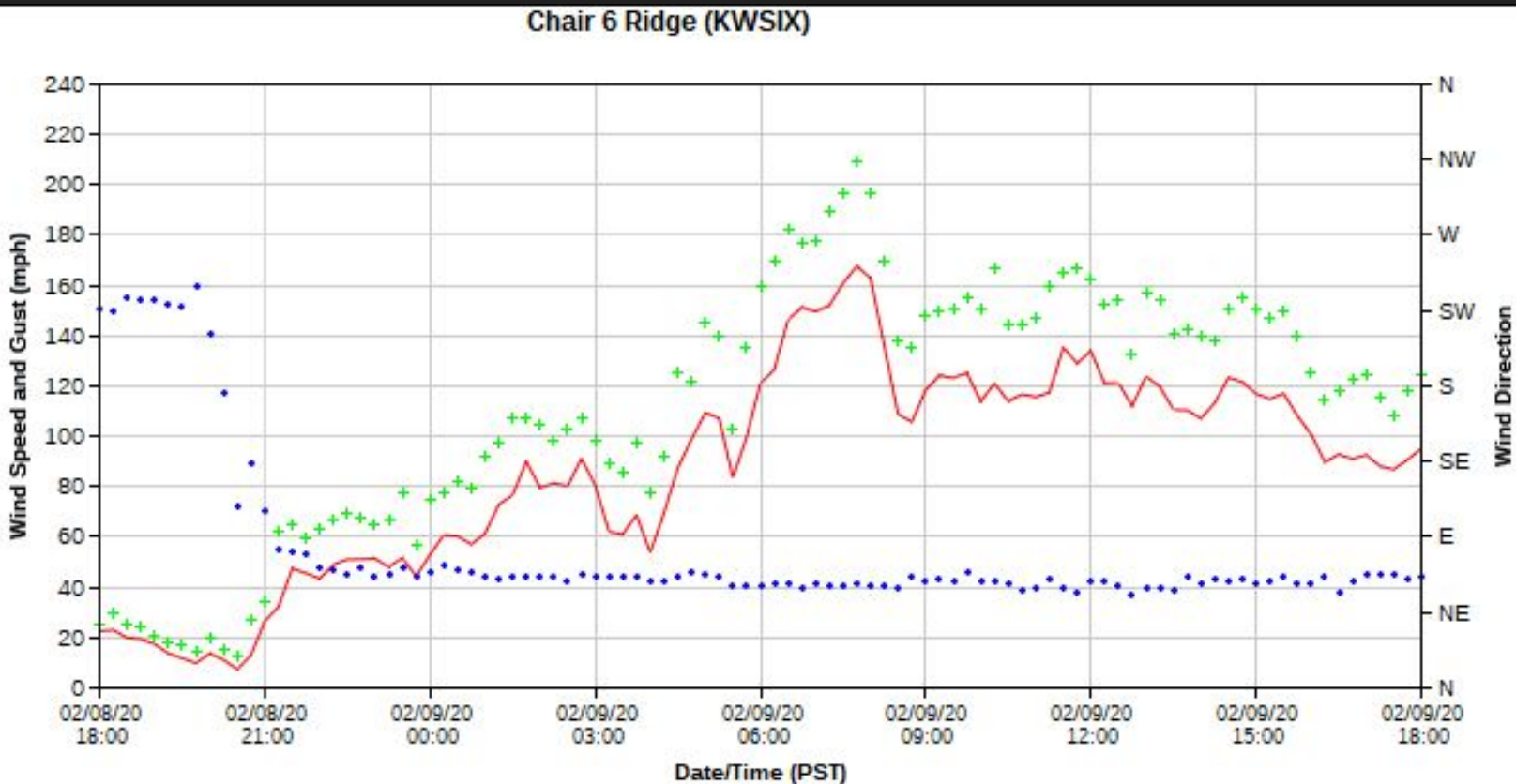


# Kirkwood Feb 9, 2020



Pictures from Kirkwood

# Kirkwood 209 mph (unverified) wind gust





# Taylor Scientific Engineering - Kirkwood

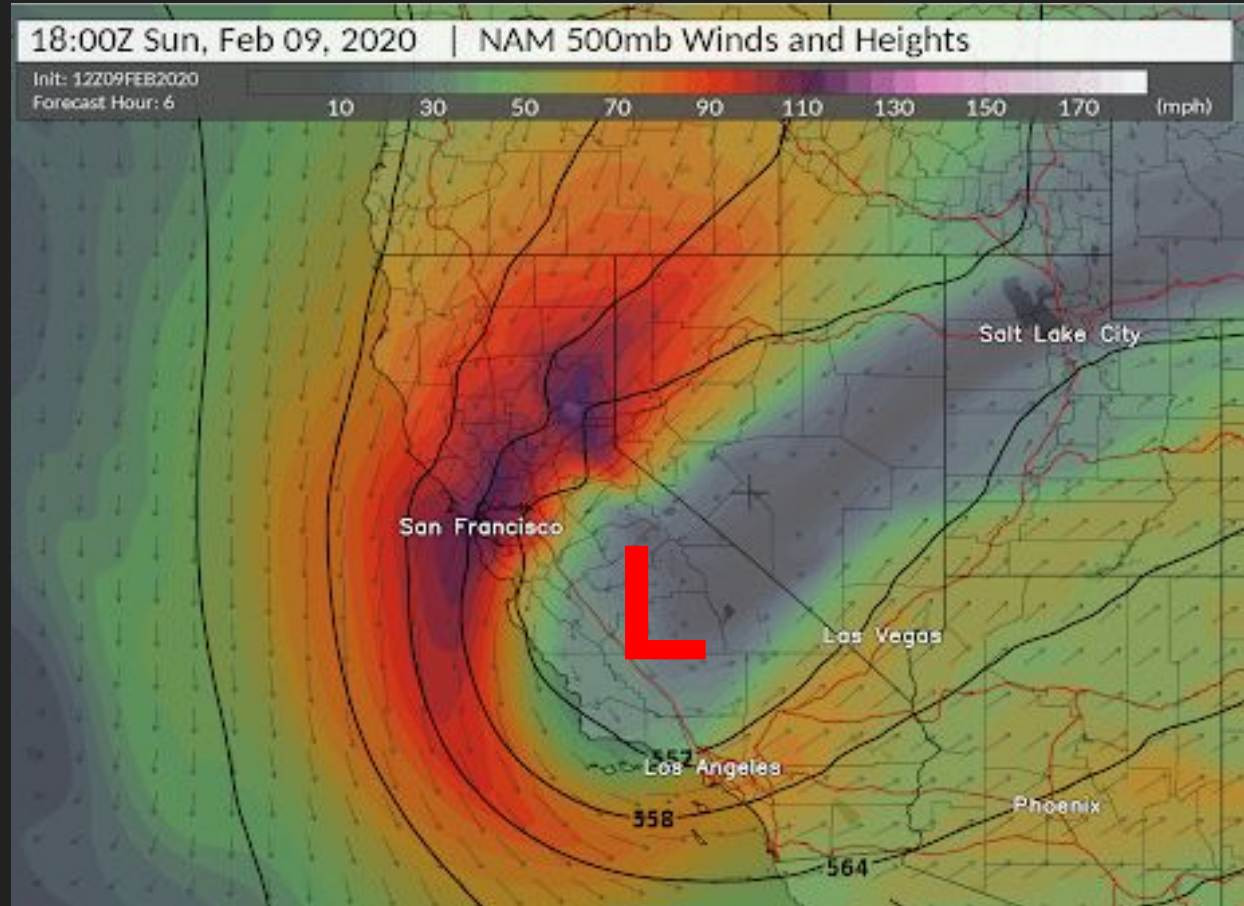


# The Setup

Low drops south through CA/NV, with NE to SW oriented jet on the backside.

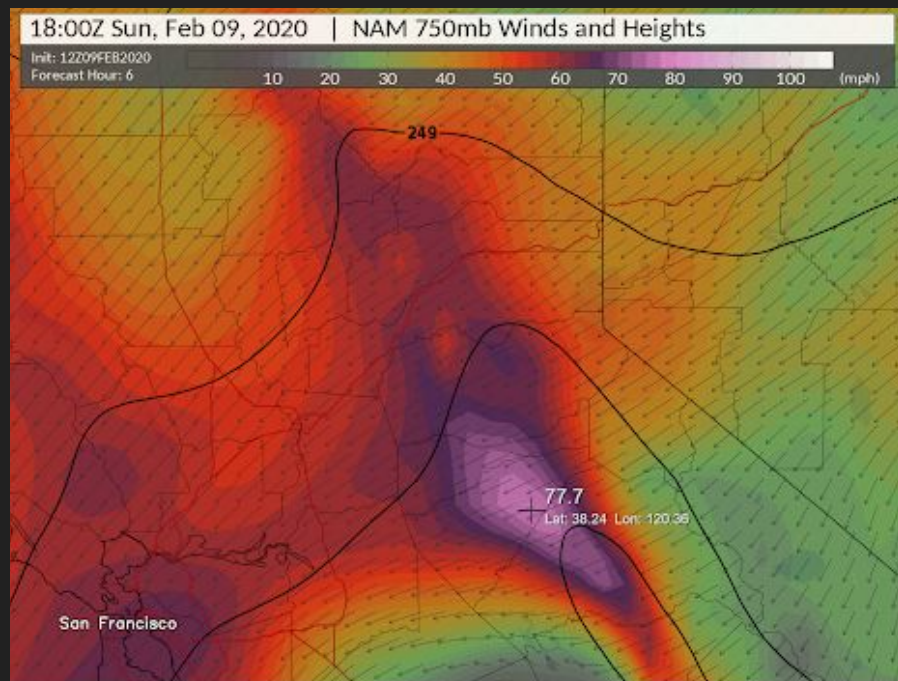
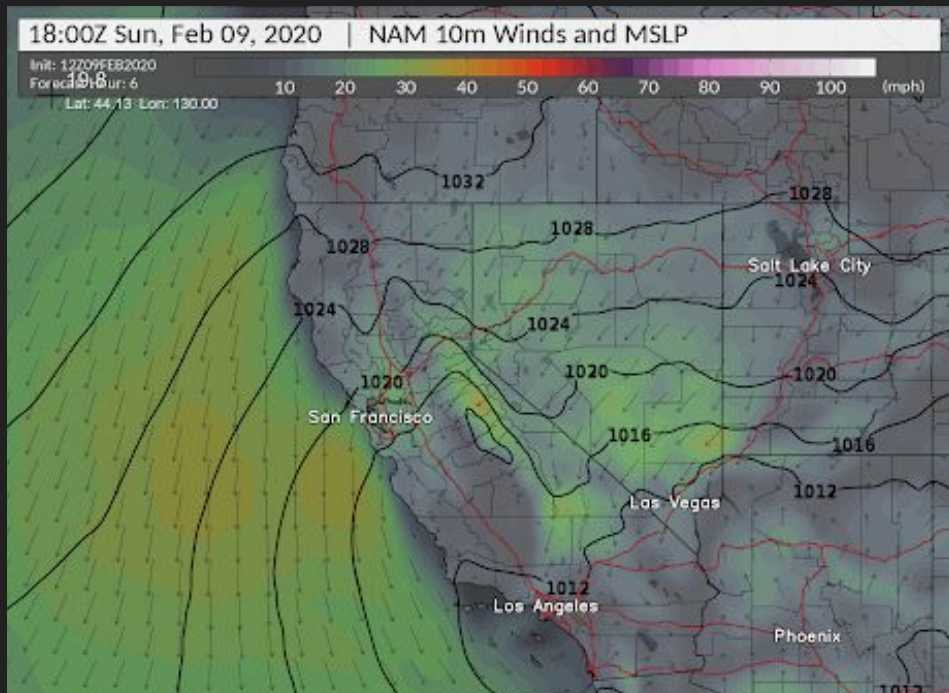
Surface high building into northern NV - strong offshore pressure gradient

Post frontal cold air flows into the Great Basin.





# Pressure Gradient and Wind Max near Kirkwood



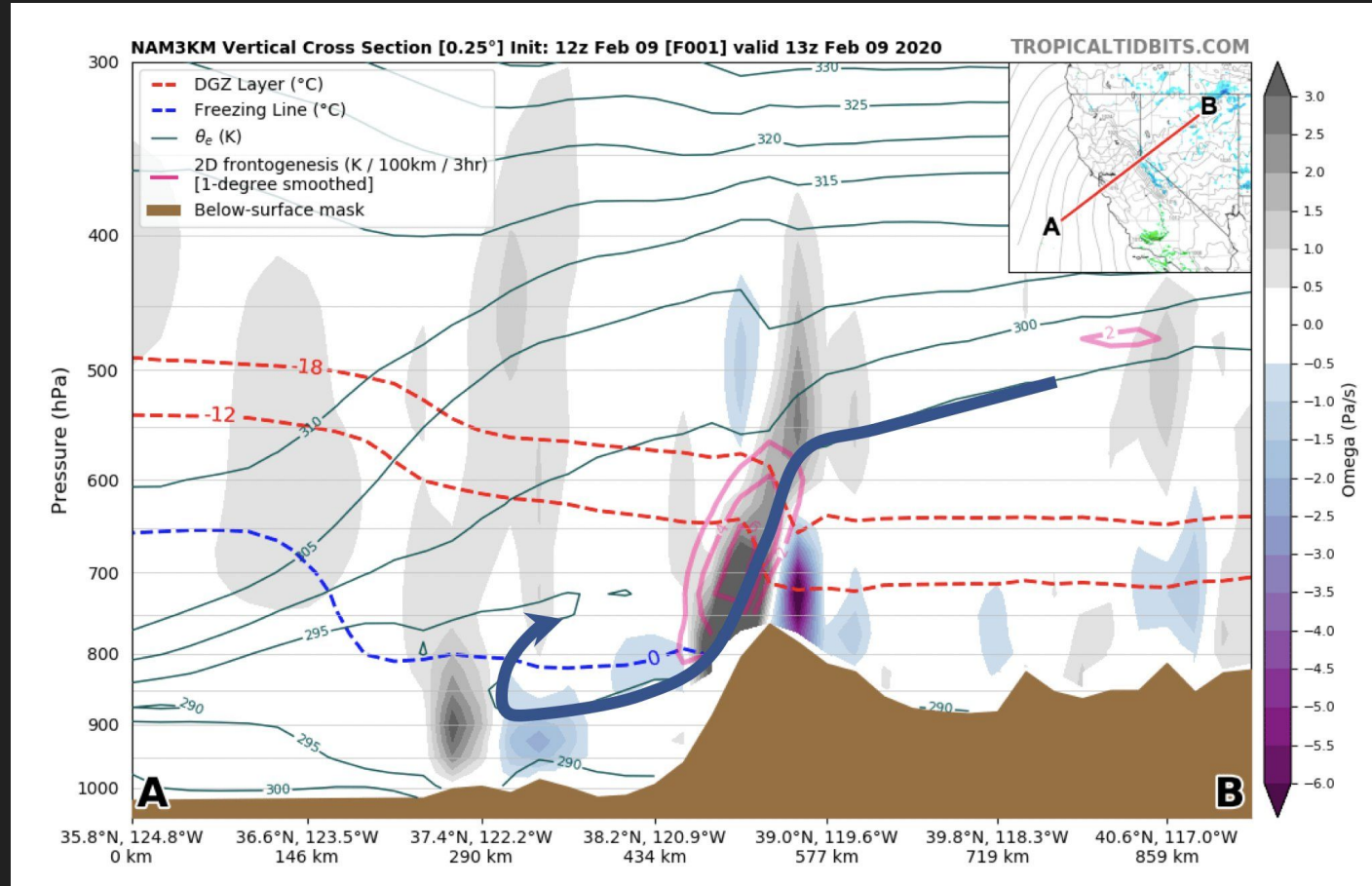
# NAM-3km Cross section from tropical tidbits

Downslope or rapidly descending air signature.

Winds funnel between airmass and terrain.

Graphic at right from Tropical Tidbits and [@nplareau](#)

[GOES-17 WV Loop](#)  
[@nplareau](#)





# Nozzle on the garden hose...

Venturi Effect.

Challenge to model  
and forecast peak  
wind gusts.

Improved surface  
observation network  
helps, especially on  
mountain tops.

