

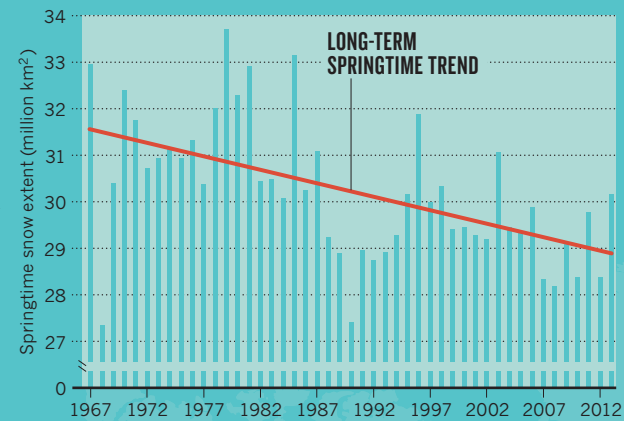
# DOWNHILL FORECAST

## WINTER SPORTS FACE AN UNCERTAIN FUTURE AS THE PLANET WARMS.

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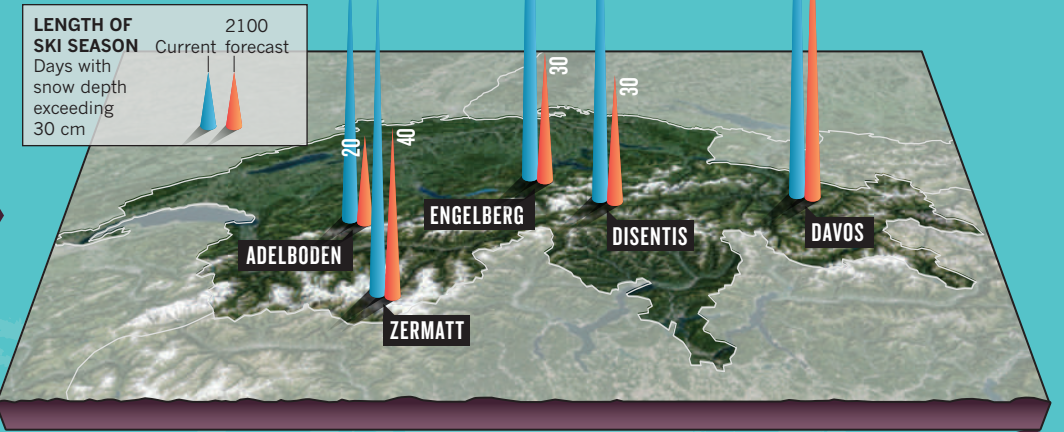
### SHORTER WINTERS

Snow extent in the Northern Hemisphere has increased slightly in autumn and winter over recent decades, but has dropped substantially in spring, resulting in a shorter snow season.



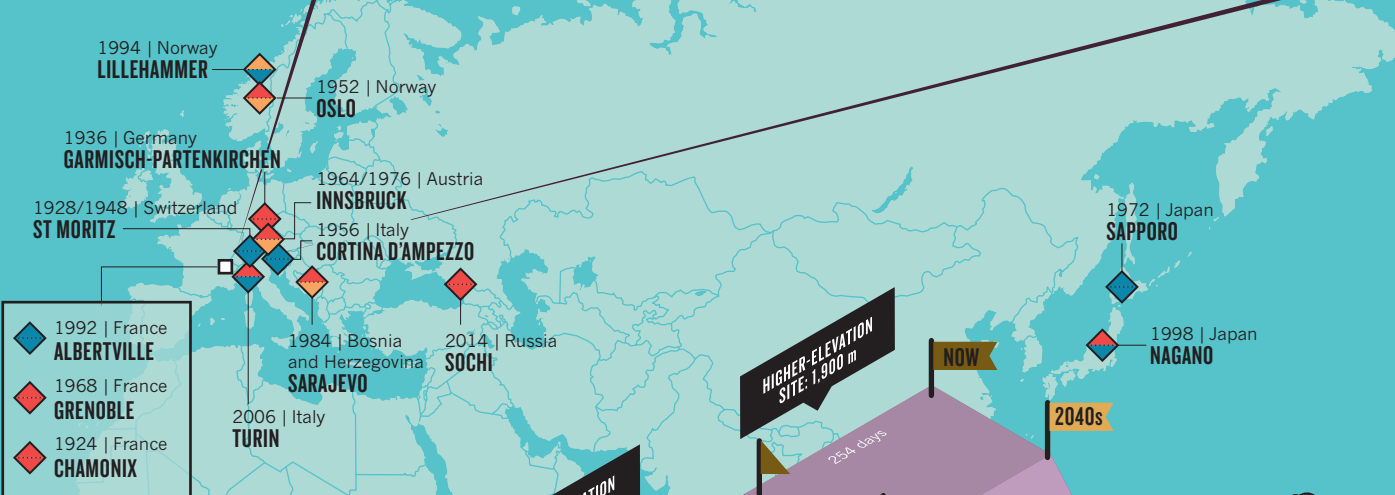
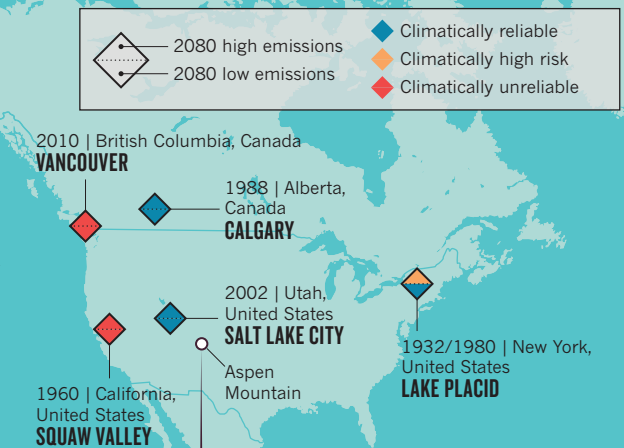
### TROUBLE IN THE ALPS

If emissions of greenhouse gases continue to increase quickly, climate simulations project that many Swiss resorts will see a sharp reduction in the number of days with enough natural snow for skiing.



### THE DWINDLING OLYMPICS

If greenhouse-gas pollution increases slowly, climate forecasts suggest, only 10 of the 19 previous Winter Olympic sites will have a high probability of having enough snow and low enough February temperatures to host again in the 2080s. Projections suggest that if emissions climb quickly, only six former sites will be suitable.



### ROCKY SLOPES

Colorado's Aspen resort is one of the most famous skiing areas in North America, but its long-term future is uncertain. Projections in one study suggest that by 2100 the rising winter snowline will near the base of the ski lifts. By 2100, the winter snowpack is forecast to cover only the top of the mountain.

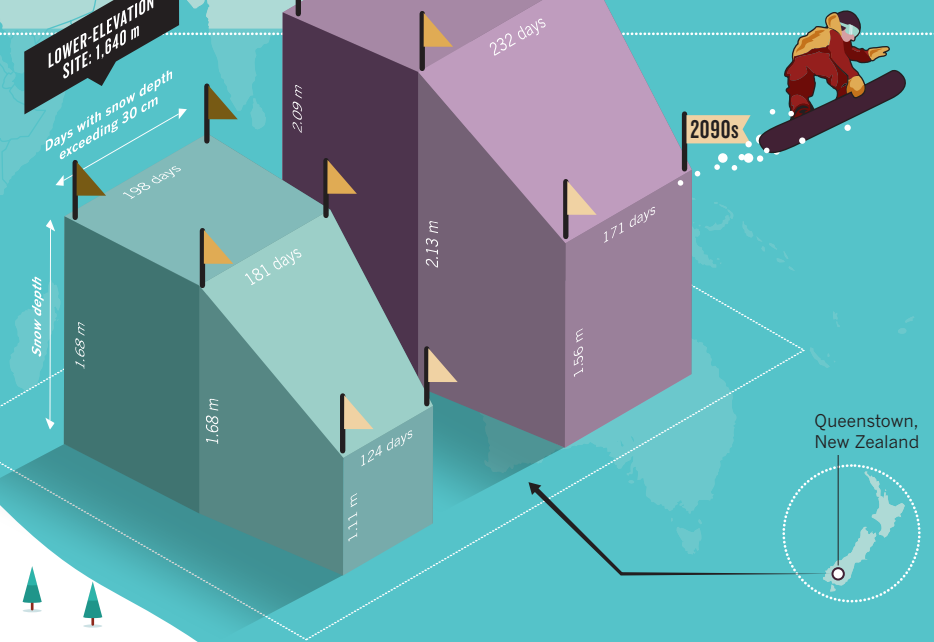
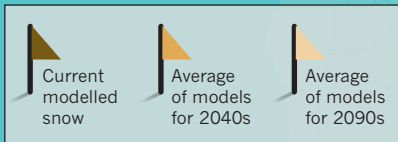
Peak elevation  
3,418 m

2100 snowline forecast  
2,800 to 3,200 m

Resort base  
2,422 m

### SNOW DOWN UNDER

Forecasts using a mid-range emissions scenario suggest that high-elevation skiing areas in New Zealand could see deeper snow in the 2040s. But by the 2090s, the number of snow days and the depth of the snowpack are projected to fall substantially.



SOURCES: SHORTER WINTERS: RUTGERS UNIV. GLOBAL SNOW LAB; THE DWINDLING OLYMPICS: D. SCOTT ET AL. THE FUTURE OF THE WINTER OLYMPICS IN A WARMING WORLD (UNIV. WATERLOO, 2014); TROUBLE IN THE ALPS: M. BENISTON WIRE CLIM. CHANGE 3, 349-358 (2012); ROCKY SLOPES: S. LAZAR & M. WILLIAMS PROC. WHISTLER 2008 INT. SNOW SCI. WORKSHOP 998-1005 (2008); SNOW DOWN UNDER: J. HENDRIKX ET AL. CLIM. CHANGE. 119, 965-978 (2013).