

Mountain Meteo Services

<http://www.meteoexploration.com/>

Mountain Meteo Services provides state of the art weather forecasts for high altitude mountaineering or expeditions to remote lands. These pages are a valuable help for deciding the timing of progress in the mountains, while our tailored forecast will provide almost all the useful weather information available for high mountain areas.

Mountain Meteo Services is made up of a team integrated by academic researchers in fields such as climatology, mountain meteorology, mountain hydrology, tropical glaciology or avalanche forecasting. At the same time some of them are mountain guides, mountain photographers, high altitude mountaineers or dedicated telemarkers.

They know how the weather can be in the mountains as they have suffered it many times, yet they are confident that the better the weather forecast, the better the chances of a successful achievement and the better the enjoyment of the mountains. It is never being truer that knowledge is power, and in this case it could be the power to climb the mountains and return in one piece.



The team do not have a magic ball and do not sell snake oil. Scientific knowledge of the weather systems and the behaviour of the atmosphere is still poor. Be very critical if anybody tells you something different! Even the most powerful supercomputers cannot cope with the sheer amount of data and number crunching that a detailed high resolution model requires

Yet, climate modellers are doing a pretty good job. And it is possible to make the most of it, by putting together state of the art modelling tools with personal knowledge of weather behaviour, and a long term experience on mountain terrain.

The team checks every available model, even the experimental outputs of recently conceived models, dynamical downscaling or the latest satellite imagery available. According to their experience, the GFS model performs well on mountain regions. One simple reason is that the terrain parameterization (that is, the important information on how the terrain affects the atmosphere) is based on a high resolution model of the earth's surface: as high as 1km resolution for the entire planet, even in the model has only about 50 km resolution. In any case, they keep a critical and open mind about any model.



The forecast pages in their website <http://www.meteoexploration.com/mountain/forecasts.html> present the outputs of the GFS model at 0.5° resolution, centred on the nearest grid cell for the mountain of interest. Important parameters such as the wind speed are displayed in a easy to grasp

colour code, as Advance Base Camp is not the best place on earth for complicated reasoning. A detailed explanation in English and Spanish is given in the information section <http://www.meteoexploration.com/mountain/information.html> . For some regions the team is now testing the WRF model at resolutions up to 2 km (<http://www.wrf-model.org/index.php>). It requires much more computer power, but it resolves much better the topography and therefore improves the results for mountain regions



The graphic display is optimized for speed and short downloading time. An additional simple page with twice daily charts can be downloaded directly. The charts are updated at 06z and 18z (GMT time), corresponding to the 00z and 12z outputs. The intermediate updates are reserved for the tailored forecasts (see contacts), as we do not have infinite computer power. In case of extreme weather we keep an eye on hourly satellite images and ground station data, so that we can transmit a warning message whenever possible.

Probably the most important tool for weather forecasting is the atmospheric sounding, yet its interpretation is not trivial, and estimating the orographic forcing is even more complicated. For that reason we do not display it here, but ask us about its meaning.

References

Read about previous involvement with expeditions to the Himalayas or Karakorum on these links:

- Base camp expeditions from Everest
http://www.basecamp.co.uk/weblog/en/?weblog_id=658
- Cho Oyu 2006, <http://www.mounteverest.net/news.php?id=15077> by forecasting some of the most intense snow falls in the last 10 years in the region, we helped the team planning the correct time for a successful attempt to the summit.
- K2 2004 <http://www.everestnews2004.com/2004k2/k2aduxp2004dis10.htm>
- K2 2003 <http://www.k2news.com/pak2003/k2spandis15.htm> and <http://www.k2climb.net/story/K2summitpushabortedinhighwindJul272003.shtml>
- Investigación: Hombres del tiempo en los Gasherbrum. Desnivel.com
<http://www.desnivel.com/deportes/expediciones/object.php?o=13801>

Some papers of a more academic content:

- Numerical Simulations Of Snow And Mountain Weather Conditions
<http://www.map.meteoswiss.ch/map-doc/icam2003/473.pdf>
- Modelling And Monitoring Snow Redistribution By Wind
<http://www.cosis.net/abstracts/EAE03/06409/EAE03-J-06409.pdf>
- Improvement of a numerical snow drift model and field validation
http://www.uibk.ac.at/geographie/personal/corripio/publications/durandetal05_crst.pdf
- Modelling climate-change impacts on mountain glaciers and water resources in the Central Dry Andes http://www.uibk.ac.at/geographie/personal/corripio/publications/jgc_rsp_ar_07.pdf