Key issues and Recommendations

Issues	Recommendations
What it takes to make a better weather forecast over the mountains?	➢ Input observations at very high resolution ➢ A mesoscale model of high resolution (< 1 - 10 km) with appropriate physics ➢ Appropriate 3D/4D variational data assimilation system
How to generate better initial conditions for mesoscale forecasting over the Himalayas?	➢ Set up mesoscale network of automatic weather stations along the entire Himalayan belt ➢ Install Doppler Weather Radars covering the Himalayan range ➢ Utilize satellite observations over the region.
How to increase accuracy of forecasts over the Himalayas?	➢ Conduct sensitivity experiments with the physical processes ➢ Examine the forecasts at different resolutions in horizontal and vertical
Do we understand the physical processes over the mountains?	➢ Conduct special field experiments at suitable locations to study severe storms, cloud microphysics and other mesoscale convective complexes ➢ Study air flow, mass and moisture fields over and around the mountain ranges under various synoptic conditions, Western Disturbances and Norwesters ➢ Study the precipitation patterns and orographic contributions at different altitude ranges during summer and winter seasons
What are the dynamical effects of mountains on the weather systems?	➢ Study dynamic and physical processes associated with orographically forced thunderstorms ➢ Improve understanding of mountain waves, lee cyclogenesis, gravity wave drag and, parameterization of sub-grid scale orography in NWP models