1. ABSTRACT
An accurate reconstruction and reliable prediction of weather situation are desired to understand, model and predict suspected particulate transport and deposition over the region of interest. Reconstruction and prediction of diverse weather situations that could possibly prevail over the extreme terrains of Himalayas at high spatial resolution have been remained to be of great challenge. In this paper, we will present some of the successfully reconstructed weather situation over the extreme terrains encompassed by the Nepal Himalaya at the resolution of 1km x 1km horizontal grid size. Fictitious particulates released in different parts of the southern plain and their transport and deposition patterns over the mountainous areas as evolved by numerical simulation will also be presented. The knowledge of transport and deposition patterns of fictitious particulates can have significant applications in assessing possible risks of human suffering from suspected particulates.

2. INTRODUCTION
A realistic assessment and forecasting of extreme weather system for the Himalayan complex terrain are really challenging tasks. Himalayan complex terrain in interaction with the synoptic system develops its own characteristic micro-scale weather system. Moreover, this is the region where the local circulations associated with a large number of small-scale subdivisions and sub-climates interact in a complicated manner. These interactions need to be sufficiently resolved to realize accurate reconstructions and reliable prediction of weather situations over the region and hence to assist transport and deposition of suspected particulates. The geographic remoteness, difficult trails and the absence of necessary observational facilities put further limitation in such scientific endeavors. In this study efforts have been made to reconstruct extreme weather events in extreme terrain and transport and deposition patterns of fictitious pollutants over the region.

3. METHODOLOGY
a. The triply nested two way interacting domain system has been adopted having the resolution of coarse, fine and finest domain as 9km and 3km and 1km, respectively.
b. All the meteorological parameters were generated from WRF model.
c. Fictitious non-reaction pollutants were released over the southern plain urban areas.
d. The Chemical Transport Model (Kitada Laboratory, TUT, Japan) used for the atmospheric transport processes from lowlands up into the Nepal Himalaya.

4. RESULTS

i. Extreme Rainfall over Western Nepal
a. Western Nepal was drenched with an extreme precipitation of about 357 mm within a 24 hours on 18 August 2001.
b. Simulation captured characteristic spatial and temporal distribution of extreme precipitation over the region but the predicted maximum remained to be around 280 mm.

ii. Weather hazards that lead to fatal aircraft accident on 16 February 2014

iii. Windstorm

iv. Weather hazards that lead to fatal aircraft accident on 16 February 2014

v. Transport of lowland pollutants

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