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Abstract

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Abstracts

Whole Atmosphere Observation Over Tibet with Apsos System – From Surface to Lower Thermosphere.....3

Progress of semi-arid climate change in China.....4

Cooperation on Climate change impacts and Impact-based early warning in Central Asia.....5

Progress in Meteorological Science and Technology Cooperation with Central Asian Countries.....6

Synergistic regulation of the interdecadal variability in summer precipitation over the Tianshan mountains by sea surface temperature anomalies in the high-latitude northwest Atlantic Ocean and the Mediterranean Sea.....8

Hydrological modeling in the mountainous area of Kazakhstan.....10

An Improved Hydrometeor Detection Method for Millimeter Cloud Radar and its Application to CloudSat.....11

Application of rotational, divergent and variation wind field decomposition method in extreme precipitation process in Central Asia.....12

Monitoring, forecasting and prevention of dangerous hydrometeorological phenomena (villages, floods and avalanches) in the Republic of Uzbekistan.....13

A numerical study of convection initiation in South Xinjiang, Northwest China.....16

The impacts of climatic factors on radial growth patterns at different stem heights in Schrenk spruce (*Picea schrenkiana*).....17

The concurrent effects of the South Asian monsoon and the plateau monsoon over the Tibetan Plateau on summer rainfall in the Tarim Basin of China19

A tripole pattern of summertime rainfall and the teleconnections linking northern China to the Indian subcontinent.....20

Destruction threat assessment of mudflow passage in the southeast of Kazakhstan.....22

Characteristics Analysis of Snowstorms in Northern Xinjiang.....23

Impacts Of Climate Change On Hydrological Regime Of River Basins23

A 348 years tree-ring based drought variability from northern Pakistan and its possible climatic mechanism28

Modeling study on three-dimensional distribution and regional transport of dust aerosols during a typical springtime dust storm over the Tarim Basin, Northwest China.....30

Development of the Belt and Road (BR) Lidar Network.....32

Destruction threat assessment of mudflow passage in the southeast of Kazakhstan

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Abstract

This contribution presents an accurate analysis of the hazard and disaster, as well as assess the risks of disasters in Kazakhstan. In recent decades, there has been an increase in the number of events of all types of natural disasters all over the world. The economic and human losses in this case are directly proportional. Climate change and environmental degradation are one of the reason of this. Kazakhstan is also in the global trend for climate change and increased natural disasters. All types of mudflows except volcanic are recorded in Kazakhstan. More than half of all reported cases of mudflows occur in the southeastern region of the country, which is densely populated. Risk assessment was carried out according to three methods:

1. Past events analysis: events register
2. Geomorphological approach: signs indicating the occurrence of hazardous processes
3. Simulations: triggering zone, motion, deposits

Most mudflows belong to rain genesis mudflows. The authors performed a deep statistical and comparative analysis of long-term daily precipitation. The results provides information on the increase in average annual air temperature and annual precipitation in mountainous areas. The normalized empirical distribution curves for the Ile and Zhetysu Alatau ridges are constructed.