



The 2nd International Workshop of Meteorological Science and Technology in Central Asia

September 28-29, 2016, Friendship Hotel, Beijing, China

Program

11:40-12:00	HAN Wei(Professor, Numerical Weather Prediction Center, CMA): Assimilation of Satellite Data Over Central Asia
12:00-12:20	YANG Liangmei(Deputy Director, Institute of Desert Meteorology, China Meteorological Administration): Mesoscale Characteristic Analysis on a Short-Time Heavy Rain in Urumqi on 9 June 2015
12:30-14:00	Lunch
DAY 2-Afternoon	
14:00-15:30	Session I: Evaluation of Climate Change and its Influence (Chair: Jia Gensuo)
	<i>15 minutes each talk</i>
14:00-14:15	FENG Zhaodong(invited talk, Xinjiang Institute of Geography and Ecology, Chinese Academy of Sciences): Debates on Holocene Climatic Heat-Water Combinations in the Core Area of Central Asia-- <i>with a Focus on the Past 2000 Years</i>
14:15-14:30	CHEN Wen(invited talk, IAP/CAS): An abrupt rainfall decrease in the Asian inland plateau around 1999 and its possible mechanism
14:30-14:45	Monkayeva Gulsara (RSE "Kazhydromet"): Extreme climatic indices on the territory Kazakhstan
14:45-15:00	HUANG Jian (Institute of Desert Meteorology, China Meteorological Administration): Effects of climate change on overwintering pupae of the cotton bollworm, <i>Helicoverpa armigera</i> (Hübner) (Lepidoptera: Noctuidae)
15:00-15:15	Bolatov Kainar (RSE "Kazhydromet"): Geographically-high-altitude dependence of thunderstorm activity for Almaty region
15:15-15:30	QI Yajie(IAP/CAS): Near-term projection of global and regional temperature changes in CMIP5 considering both the secular trend and multi-decadal variability
15:30-15:50	Tea break
15:50-17:35	Session II: Response of the Water Resources to the Climate Change(Chair: Han Wei)
	<i>15 minutes each talk</i>
15:50-16:05	WEI Ke(IAP/CAS): Re-examination of the Aridity Conditions in Arid Northwestern China for the Last Decade
16:05-16:20	Sangeeta Sarmah (IAP/CAS): Contrast of decadal greenness changes between rainfed and irrigated croplands in South Asia
16:20-16:35	Institute of water problems, hydropower and ecology, Academy of Sciences of the Republic of Tajikistan
16:35-16:50	MENG Chunlei(Institute of Urban Meteorology, China Meteorological Administration): Modeling the land surface processes: An integrated scheme
16:50-17:05	Agency of Hydrometeorology, Tajikistan

Geographically-high-altitude dependence of thunderstorm activity for Almaty region

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The results of Geographically-high-altitude dependence of thunderstorm activity for Almaty region research are given in the article. One of the of the important analysis elements was the estimation of the number of days correlation dependence with thunderstorms on the altitude. For this purpose, the dependence of the annual average number of days with thunderstorms from the altitude of the place was determined for each type (subtype) of macro - and mesorelief based on regression analysis, and also the statistical significance of the correlation coefficients by the t-test and Fisher test with reliable probability $p = 0,90- 0. 95$. was assessed. On the basis of the results mapping of storm activity was carried out using equations of regression and digital elevation models. The areas with the most active thunderstorm activity were identified. Also it was identified, that local areas with higher storm activity were observed in mountain and foothill areas of Ile and Jungar Alatau at a height of 1.5-2 km.

Key words: thunderstorm, the number of days with thunderstorms, terrain elevation, digital elevation model (DEM).

INTRODUCTION

Altitudinal climatic zonation is the main feature of the mountain and foothill areas. But in some cases, altitude dependence of some meteorological variables and phenomena is strongly distorted and camouflaged with meso and micro relief terrain conditions. For this reason, in order to identify such dependences it is necessary to use special techniques that allow taking into account the effect of different scales orographic. In present study we deal with the climatic characteristics of thunderstorm activity for the complex territory with regard to orographic - Almaty region of Kazakhstan. Orographic location of the region studied is distinguished by its diversity. The northern part of low inclined to the north plain of Pibalqash (height 300-500 m), with arrays of ridgy and quick sands (Sarah-Ishikotrau, Taukum). In the south and east the ridges with two arrays extend up to 5000 m: Ile Alatau and Jungar Alatau Mountains (Tian Shan).

At the joint of gradually dipping slopes Ile`s average river bed is located. Leading air currents in this area meet the natural barrier in the form of mountain uplifts (Jungar Alatau on the east, Ile Alatau on the south) that create the most favorable conditions for the aggravation of atmospheric fronts, strengthening of forced and thermal convection and the development of thunderstorms.

north-west to the south-east region. According to the analysis on the territory of the region, the storm phenomena are observed on average from 5 to 45 days or more depending on the area.

Local areas of increased storm activity are observed in mountainous and foothill areas of Jungar and Ile Alatau. The obtained areas of thunderstorm activity with the help of equations are consistent with the observed data in a fairly high degree.

Conclusion

Sources (Literature):

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