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渤海海面冰情变化趋势预测(PDF)

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作者: [韩素芹^{1, 2}](#); [林枚²](#); [黎贞发²](#); [孟冬梅²](#); [柳艳菊³](#)

1. 南开大学环境科学与工程学院, 天津300071;

2. 天津市气象科学研究所, 天津300074;

3. 国家气候中心气候变化室, 北京100081

Author(s): [HAN Su-qin^{1, 2}](#); [LIN Mei²](#); [LI Zhen-fa²](#); [MENG Dong-mei²](#); [LIU Yan-ju³](#)

1. College of Environmental Science and Engineering, Nankai University, Tianjin 300071, China;

2. Tianjin Institute of Meteorology, Tianjin 300074, China;

3. National Climate Center, Beijing 100081, China

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摘要: 渤海地处中国北方,是我国唯一出现海冰的海域,海冰影响着航运以及海上油气的开发和生产.渤海海面冰情的发展和生消,与大尺度环流形势和海区气象水文条件密切相关.以环渤海地区的气候特征为背景,分析冷暖空气活动的特点,做出气温变化的预测,进而推测海面冰情的发展趋势.分析了1990-1999年冬季渤海周边10个气象台站的气温资料,挑出有明显降温的个例,并将当时的500 hPa的高度场形势归为:远槽型、近槽型、低压型、横槽型、锋区型和槽后型共6种类型.不同的天气类型反映冷空气活动的不同路径.根据天气分型,选择500 hPa和850 hPa天气图中反映冷空气活动和描述冷暖气团状态的气象要素作为方程因子,如高空冷暖平流强度、冷气团强度、锋区强度、冷空气引起的降温幅度以及偏北风速等,建立10个气象台站的24,48和72 h变温预报方程.方程平均拟合率在60%以上.将预测的变温对冰情的影响分成6个等级.验证结果表明,预报方

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程式能够预报出渤海海面冰情变化趋势,与海冰遥感监测结果一致.

Abstract: The navigation and the production of the natural gas are greatly affected by the seaice in Bohai Sea, which is the unique sea to be frozen in north China. The occurrence and development as well as disappearance of seaice are closely related with the large-scale circulation and hydro-meteorological condition. Based on the characteristics of the climate over the Bohai region, the activities of the cold and warm air were analyzed to make the prediction of temperature variation, further in fer the developing tendency of seaice. The surface temperature data in winter at ten observation stations along the Bohai Sea from 1990 to 1999 were employed. The special cases with the temperature lowering obviously were selected. About seven kinds of synoptic systems were classified based on the 500 hPa' s height field, namely far-trough type, near-trough type, low type, horizontal trough type, frontal zone type and trough-back type. Different synoptic systems reflect the different route of cold air. According to the type of the above mentioned synoptic systems, the meteorological elements which could characterize the activities of cold air and depict the state of cold and warm air masses were chosen to establish the 24-hour, 48-hour and 72-hour temperature variation forecast equations at ten stations respectively. These factors included the intensity of advection, intensity of cold air mass, intensity of frontal zone in the low level, the amplitude of temperature falling of cold air and the