

### 基于SSM/I的青藏高原东部雪深模型反演及积雪时空分布研究

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#### 摘要:

雪灾是制约牧区草地畜牧业持续发展的主要气象灾害之一。利用研究区1995-1996年、2000-2001年、2005-2006年10月到次年3月共3个积雪季的SSM/I日亮温数据和79个气象台站对应的地面实测雪深值,反演了青藏高原东部的雪深模型,估算了积雪分布面积和积雪深度。研究表明:3个积雪季的月、旬积雪面积都是先增加,在12月到次年1月达到最大值,然后减少;各积雪季雪深以<5 cm为主,10月、次年2月和3月期间基本上没有>10 cm以上的积雪;从3个积雪季的旬雪深数据来看,各旬3个级别的雪深面积变化基本上都遵循了先增大后减小的趋势,其中雪深<5 cm的积雪面积变化最大,>10 cm的积雪面积变化最小;3个积雪季510 cm的积雪主要分布在青南的玉树、果洛州。

关键词: 微波亮温数据; 雪深模型; 反演; 时空分布

### SSM/I based model inversion of snow depth and temporal and spatial distribution of snow cover on the on the eastern Qinghai Tibet Plateau

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#### Abstract:

Snow disaster is one of the main meteorological disasters restricting the livestock production and sustainable development of pastoral area. The snow depth model was inversed and the distribution and snow depth of snow cover were estimated in eastern Qinghai Tibet Plateau by using SSM/I daily brightness temperature data and corresponding measured ground snow depth from 79 meteorological stations in the research area from October to next March during 1995 to 1996, 2000 to 2001 and 2005 to 2006. Results showed that the area of snow cover increased at intervals of one month or ten days in 3 snow seasons and reached the maximum during December to January, and then reduced. The depth of snowcover in each snow season was less than 5 cm, and basically, it was not over 10 cm in October, next February and March. Based on the snow depth data at intervals of ten days in 3 snow seasons, the snow cover area normally increased at the beginning and then decreased, in which, the change of snow area that snow depth was below 5 cm was the largest, and that above 10 cm was the smallest. In 3 snow seasons, the snow cover areas with depth from 5 to 10 cm mainly distributed in Yushu and Guoluo prefectures in the south of Qinghai Province.

Keywords: SSM/I snow depth model inversion temporal and spatial distribution

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