

一個能實際使用的變分分析程式

A Variational Analysis Scheme Suitable for Operational Use

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An objective upper-air analysis of height, temperature and wind based on variational method is proposed for operational use. The analyzed fields by successive corrections method are used as input data to perform the variational optimization analysis. The hydrostatic equation and the horizontal momentum equations are employed as dynamic constraints to maintain the internal consistency. The governing analysis equation for the geopotential is elliptic and amenable to solution by relaxation method. A case study has been made to investigate the applicability of the proposed scheme to synoptic data in East Asia area.

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中文摘要

本文提出一個可實際使用的變分客觀分析程式。本法以動量方程式和靜水方程式為動力條件，進行氣象變數值的變分分程，以校正這些變數值，使其能維持內部一致，亦即能代表大氣大規模運動的特性。由變分原理所得的方程式可用緩和法來求解。本文亦仔細討論分析方程式的特性。本研究分析去年颱風貝蒂的天氣資料來考察校正後氣象變數的內部一致問題。