

空间物理学★大气物理学★大地测量学

我国南方夏季低频雨型的季节内水汽输送特征

左金清^{1,2}, 任宏利², 李维京², 张培群², 杨明珠²

1 兰州大学大气科学学院, 兰州 730000

2 国家气候中心, 北京 100081

收稿日期 2008-7-19 修回日期 2009-3-24 网络版发布日期 2009-9-20 接受日期

摘要 利用1962~2006年NCEP/NCAR再分析资料, 采用对历史个例进行合成分析的方法, 研究了异常降水中心分别位于长江以南区域的江南型和长江-淮河流域的江淮型低频雨型的季节内水汽输送特征. 研究表明, 江南型的总水汽输送主要来源于孟加拉湾, 并经中南半岛和南海输入江南区域; 江淮型的总水汽输送主要直接来源于南海, 但水汽源地主要为印度季风区. 对于水汽输送异常, 江南型和江淮型具有明显不同的特征. 江南型的水汽输送异常主要来源于热带西太平洋-南海, 中纬度西风带和中高纬度南下的水汽输送异常的贡献次之; 而江淮型的水汽输送异常主要来源于热带和副热带西太平洋, 中纬度西风带水汽输送异常的贡献次之. 另外, 水汽输送异常对江南型的区域总水汽收支的贡献约为50%, 而对江淮型的区域总水汽收支的贡献高达70%左右. 因此, 虽然总水汽输送主要取决于气候平均水汽输送, 但是, 水汽输送异常与气候平均水汽输送对江南型和江淮型的水汽供应具有相同甚至更为重要的贡献. 特别是对于江淮型, 区域总水汽收支主要取决于水汽输送异常的贡献, 而水汽输送异常的变化较平均水汽输送更为复杂, 这有可能是江淮流域汛期降水预报较为困难的原因之一.

关键词 [水汽输送](#) [低频雨型](#) [江南](#) [江淮](#) [夏季](#)

分类号 [P426](#)

DOI: [10.3969/j.issn.0001-5733.2009.09.004](#)

Intraseasonal characteristics of the water vapor transport associated with the low-frequency rainfall regimes over Southern China in summer

ZUO Jin-Qing^{1,2}, REN Hong-Li², LI Wei-Jing², ZHANG Pei-Qun², YANG Ming-Zhu²

1 College of Atmospheric Sciences, Lanzhou University, Lanzhou 730000, China

2 National Climate Center, Beijing 100081, China

Received 2008-7-19 Revised 2009-3-24 Online 2009-9-20 Accepted

Abstract The intraseasonal characteristics of the water vapor transport associated with two low-frequency rainfall regimes over Southern China in summer has been investigated by composited analysis on historic examples using the NCEP/NCAR daily reanalysis for the period 1962~2006. One of the rainfall regimes is the South of the Yangtze River (SY) regime, with a rainbelt lies to the south of the Yangtze River, and the other is the Yangtze-Huaihe valley (YH) regime, with a rainbelt along the Yangtze-Huaihe River valley. The results show that the total water vapor transport associated with the SY regime mainly comes from the Bay of Bengal, and the total water vapor transport associated with the YH regime mainly comes directly from the South China Sea but originally from the Indian monsoon region. The anomalous water vapor transports associated with these two regimes are significantly different from each other. The northward anomalous water vapor transport originates from the tropical Western Pacific Ocean (WPO) and the South China Sea plays a leading role in the anomalous water vapor supply associated with the SY regime, and the mid-latitude eastward and the mid-and high-latitude southward anomalous water vapor transports are also important for this regime. The anomalous water vapor supply associated with the YH regime mainly comes from the contributions of the northward anomalous water vapor transport originates from the tropical and subtropical WPO, and the contribution of the eastward anomalous water vapor transport from mid-latitude is next to those of the northward anomalous water vapor transport. In addition, the anomalous water vapor has a contribution of about 50% to the total regional water vapor budgets corresponding to the SY regime, while the anomalous water vapor has a contribution as high as of about 70% to the total regional water vapor budgets corresponding to the YH regime. Although the total water vapor transport is dominated by the climate mean water vapor transport, the anomalous water vapor transport has a same contribution as the climate mean water vapor transport to the regional water vapor budgets corresponding to the SY regime. Particularly for the YH regime, the total regional water vapor budgets are dominated by the anomalous water vapor transport, which may be one of the reasons for the more difficulty in the prediction of summer rainfall over the Yangtze-Huaihe valley since that the anomalous water vapor transport is more complicated than the mean water vapor transport.

Key words [Water vapor transport](#); [Low frequency rainfall regime](#); [South of the Yangtze River](#)

扩展功能	
本文信息	
▶	Supporting info
▶	PDF (4148KB)
▶	[HTML全文] (0KB)
▶	参考文献
服务与反馈	
▶	把本文推荐给朋友
▶	加入我的书架
▶	加入引用管理器
▶	引用本文
▶	Email Alert
▶	文章反馈
▶	浏览反馈信息
相关信息	
▶	本刊中 包含“水汽输送”的 相关文章
▶	本文作者相关文章
·	左金清
·	
·	任宏利
·	李维京
·	张培群
·	杨明珠

通讯作者:

任宏利 jqu0425@hotmail.com

作者个人主页: 左金清^{1;2};任宏利²;李维京²;张培群²;杨明珠²