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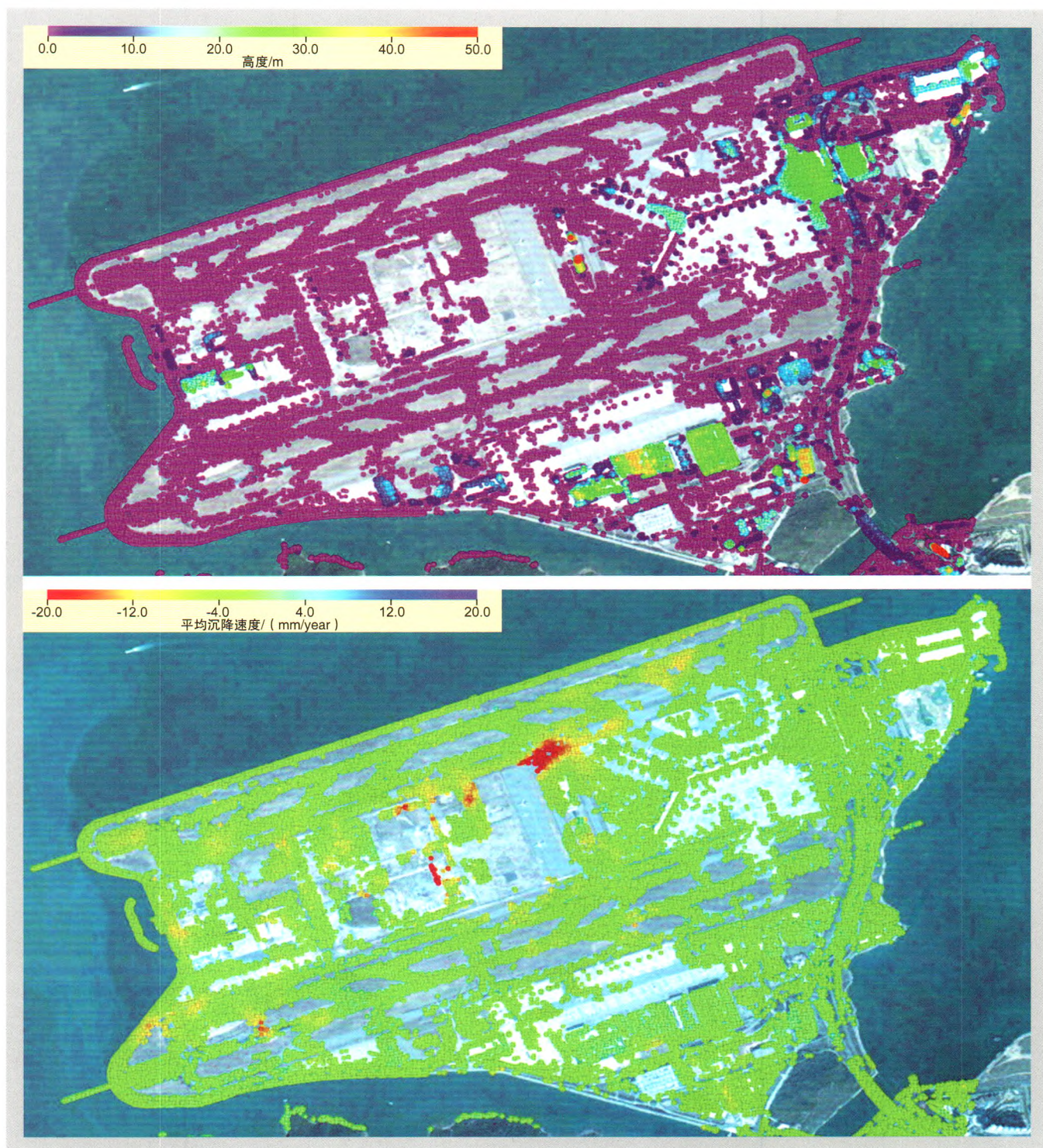
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Yaogan Xuebao

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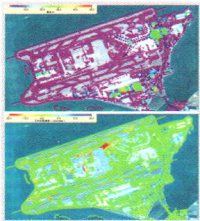
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封面说明

About the Cover

TomoSAR/PSInSAR技术监测中国香港国际机场地面沉降

TomoSAR/PSInSAR technology to monitor the reclamation lands of the China Hong Kong International Airport

封面图像为中国香港中文大学太空与地球信息科学研究所利用独立研发的 TomoSAR/PSInSAR 技术，生成的中国香港国际机场填海型地面沉降监测分析图，使用的数据是意大利的高分辨率 Cosmo-SkyMed 卫星影像，分辨率为 3 m，监测的平均周期为 4 天，提取了 2013 年—2016 年中国香港机场的沉降结果(上图为 PS 点高度，下图为 PS 点平均沉降速度)，揭示了填海区的沉降漏斗，其中最大沉降速度达到 2 cm/年，沉降量验证精度在 3 mm 以内。合成孔径雷达干涉技术 InSAR 通过 SAR 卫星的定期重复观测，提取城市地面沉降和基础设施（如房屋、公路、桥梁、大坝、机场、隧道、铁路、地下水管、输油、输气管道）形变灾害信息，检查基础设施的结构安全状况并对潜在危险提出预警。相比传统测量手段，InSAR 可实现对城市基础设施大范围同步测量，形变监测精度达到厘米级到毫米级，用于基础设施结构健康诊断。

The cover images shows the advanced TomoSAR/PSInSAR technology to monitor the reclamation lands of the China Hong Kong International Airport , which is provided by the Institute of Space and Earth Information Science, The Chinese University of China Hong Kong . It reveals the settlement areas of the airport from October 2013 to May 2016 using Italian high-resolution (3 m) Cosmo-Sky Medimages. The results indicate that reclamation lands are experiencing different levels of settlements, and the maximum settlement velocity is approximately 2 cm per year. The verification confirms that the technology achieves an accuracy of 3 mm. Synthetic Aperture Radar (SAR) interferometry can be used to constantly monitor possible deformation of urban infrastructures (e.g., buildings, highways, bridges, dams, airports, tunnels, railways, water resources systems, oil and gas pipelines) and raises alerts to the potential risks for structural safety. It is similar to X-ray Computed Tomography (CT) imaging for medical diagnosis. Compared with traditional methods, InSAR can monitor large-scale areas with an accuracy of centimeter to millimeter, and provide information for urban infrastructural health diagnosis.

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