

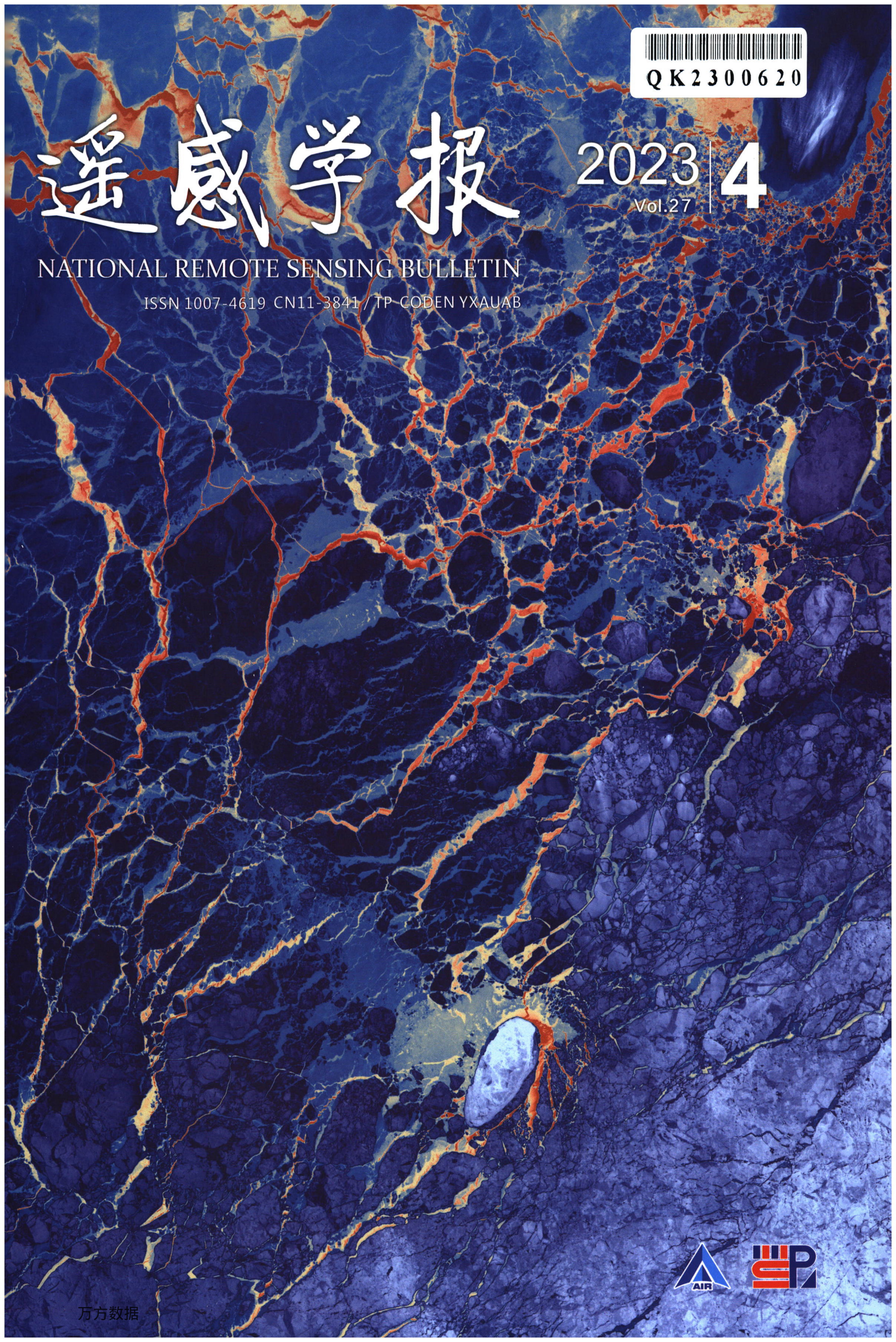


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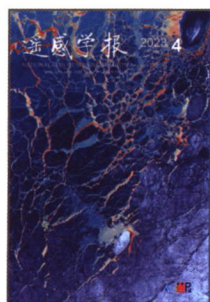
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About the Cover

可持续发展科学卫星1号北极喀拉海海冰遥感影像

The sea ice remote sensing image of the SDGSAT-1 in the Kara Sea of Arctic

封面图片是可持续发展科学卫星1号(SDGSAT-1)热红外成像仪于2023年1月8日在北极喀拉海获取的8–10.5 μm波段伪彩色影像,其中海冰和冰间水道分布清晰可见。影像右下方的海冰较为完整,影像中间的海冰逐渐破碎,表面温度呈现出显著的空间变化。海冰断裂后形成的裂缝称为冰间水道,其中覆盖着“温暖”的海水或薄冰,在影像中呈现出黄色和红色特征。SDGSAT-1卫星于2021年11月5日成功发射,是全球首颗专门服务于联合国2030年可持续发展议程的科学卫星,其热红外成像仪空间分辨率为30 m,将冰间水道热红外遥感的空间分辨率提升了一个数量级,为极地海冰消退和气候变化相关研究提供重要的数据支撑。

The cover image shows a thermal infrared remote sensing scene from Band 1 (8-10.5 μm) of the Thermal Infrared Spectrometer (TIS) onboard the Sustainable Development Science Satellite 1 (SDGSAT-1), acquired from the Kara Sea in the Arctic on January 8, 2023. Thanks to the high resolution of 30 m, the sea ice and sea ice leads are clearly observable. The image shows unbroken sea ice towards the bottom right, while the middle and upper left portions highlight gradual breaking up of sea ice, characterized by significant variations in surface temperature. Sea ice leads are elongated fractures of broken sea ice, covered by warmer sea water or thin ice, presenting yellow and red features in the infrared image. The SDGSAT-1 is the first satellite customized for the United Nations 2030 Agenda for Sustainable Development, which was launched on November 5, 2021. With the 30 m resolution imaging capability of TIS, the spatial resolution of sea ice lead observations based on thermal infrared remote sensing improves from scales of hundred meters to tens of meters. It is expected that the SDGSAT-1 can provide crucial scientific data support for research focused on sea ice retreat and climate changes in the polar regions.

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