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On the cover



### Data streams

In the cover image, captured by Rafa Averó (INVOLCAN), PhD student Alba Martín-Lorenzo samples molten lava from an active channel of the 2021 Tajogaite eruption (La Palma, Spain). In this issue, Fátima Rodríguez and co-authors detail the real-time multi-platform data collection effort during this urban volcanic crisis, while Jane Scarrow and co-authors reveal key insights gleaned from these data streams. Read more on [page 891](#) and [page 953](#).

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◇ **Articles** ◇

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◇ **Articles** ◇

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