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# Weather radars' role in biodiversity monitoring

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Biodiversity is changing at an unprecedented rate, and long-term monitoring is key to quantifying these changes and identifying their drivers (1, 2). Weather radars are an essential tool for meeting these goals. However, recent policy changes make vital data unavailable. Data policy should be adjusted to take into account the broad role that weather radars play beyond meteorology.

In addition to providing essential meteorological data for weather forecasts, flood risk planning, storm warnings, and atmospheric and climatological research (3, 4), weather radars detect trillions of insects, bats, and birds in the air (5, 6). By collecting such data, they could provide an unrecognized service to society: long-term standardized monitoring of aerial biomass flows (7). In the United States, weather radar data have already been used at a continental scale for these purposes (6, 8). However, similar efforts in Europe (9, 10) are now fundamentally threatened.

The Operational Programme for the Exchange of Weather Radar Information (OPERA) coordinates the exchange of radar data among European national meteorological services (11). It serves as a central hub for accessing weather radar data in Europe, allowing those in search of data to make one request instead of contacting each meteorological service separately. However, because of budget cuts and resulting prioritization of meteorological products, OPERA now requests that national meteorological services submit cleaned rather than uncleaned polar volume radar data (12). Uncleaned radar data include both meteorological and biological signals, whereas cleaned data exclude biological signals.

OPERA is currently establishing new centers for European weather radar data that could serve as ideal access points for diverse users and stakeholders. Access to uncleaned polar volume data at these data centers would boost their utility for aerial biodiversity monitoring and other multidisciplinary applications. To make this possible, OPERA should revise its data exchange policy to require that all countries submit uncleaned radar data, and Europe must build adequate data infrastructure to transfer and store the full data. National and international funding schemes and policy-makers such as the EU Commission should recognize and stimulate diverse applications of weather radar data, and OPERA should establish an open access data archive, which would facilitate long-term multidisciplinary research and biodiversity monitoring. If all regional associations of the World Meteorological Organization adopted similar policies, weather radars could be used for aerial biodiversity monitoring worldwide.

## References and notes

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