

Predicting the spatial distribution of stable isotopes in precipitation using a machine learning approach: a comparative assessment of random forest variants

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Monthly precipitation stable isotope values were acquired from a total of 480 monitoring stations, primarily from the Global Network of Isotopes in Precipitation, with six stations updated with more recent data: Râmnicu Vâlcea (Varlam et al. 2021), Zagreb (Krajcar Bronić et al. 2020a), Plitvice (Krajcar Bronić et al. 2020b), Ljubljana and Portorož (Vreča et al. 2015; Vreča et al. 2011; Vreča et al. 2008; Vreča et al. 2014), and Pisa (Natali et al. 2021). In addition, other local and regional networks were included:

- 11 stations in Sicily operating between February 2002 and March 2003 (Liotta et al. 2006); 6 stations (February 1992 to December 1996) (Longinelli and Selmo 2003); 8 stations (January 2002 – December 2004) from northern Italy (Longinelli et al. 2006), 3 stations from the vicinity of Mt. Vulture (Paternoster et al. 2008), and 7 stations from Tuscany (Natali et al. 2021). In addition, records from Forni di Sopra (2005-2010) (Cervi et al. 2017) and Riva del Garda from February 2007 to January 2008 (Longinelli et al. 2008);
- 6 stations in Hungary operating between January 2005 and November 2017 (Fórizs et al. 2020) and 4 stations providing data between Jan 2016 and Dec 2018 (Kern et al. 2020), K-pusztá from 2013 to 2017 (Czuppon et al. 2021), and 2 stations from 2008-2009 (Schöll-Barna 2011) in Hungary;
- 3 stations operating between May 2012 and September 2013 (Paar et al. 2019) and one station between 2017 and 2019 (Marković et al. 2020) in Croatia;
- Dumbrava from April 2012 to July 2015 (Bojar et al. 2017), Suceava from Dec 2012 to Dec 2019 (Bădăluță et al. 2021) and Ghetar from March 2012 to Dec 2018 (Bădăluță et al. 2020) in Romania;
- a single station provided data from Jan 1984 to Dec 1985 (Rozanski and Dulinski 1988) from Poland;
- 16 stations in Cyprus (2014-2017) (Christofi et al. 2020).

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