

WOVOdat at a Glance

- A global MySQL database for volcano unrest, offering standardized multi-parameter data with rich metadata (coordinates, source, instrument type, time range).
- Download data easily via a user-friendly Web Service Interface (WSI).
- Retrieve large datasets by embedding Application Programming Interface (API) links into custom scripts.
- Provides researchers and students with flexible, repeatable access to high-quality volcano data.
- Supports consistent analysis, cross-volcano comparisons, and contributes to eruption forecasting and risk reduction.

Scan to visit the
WOVOdat homepage



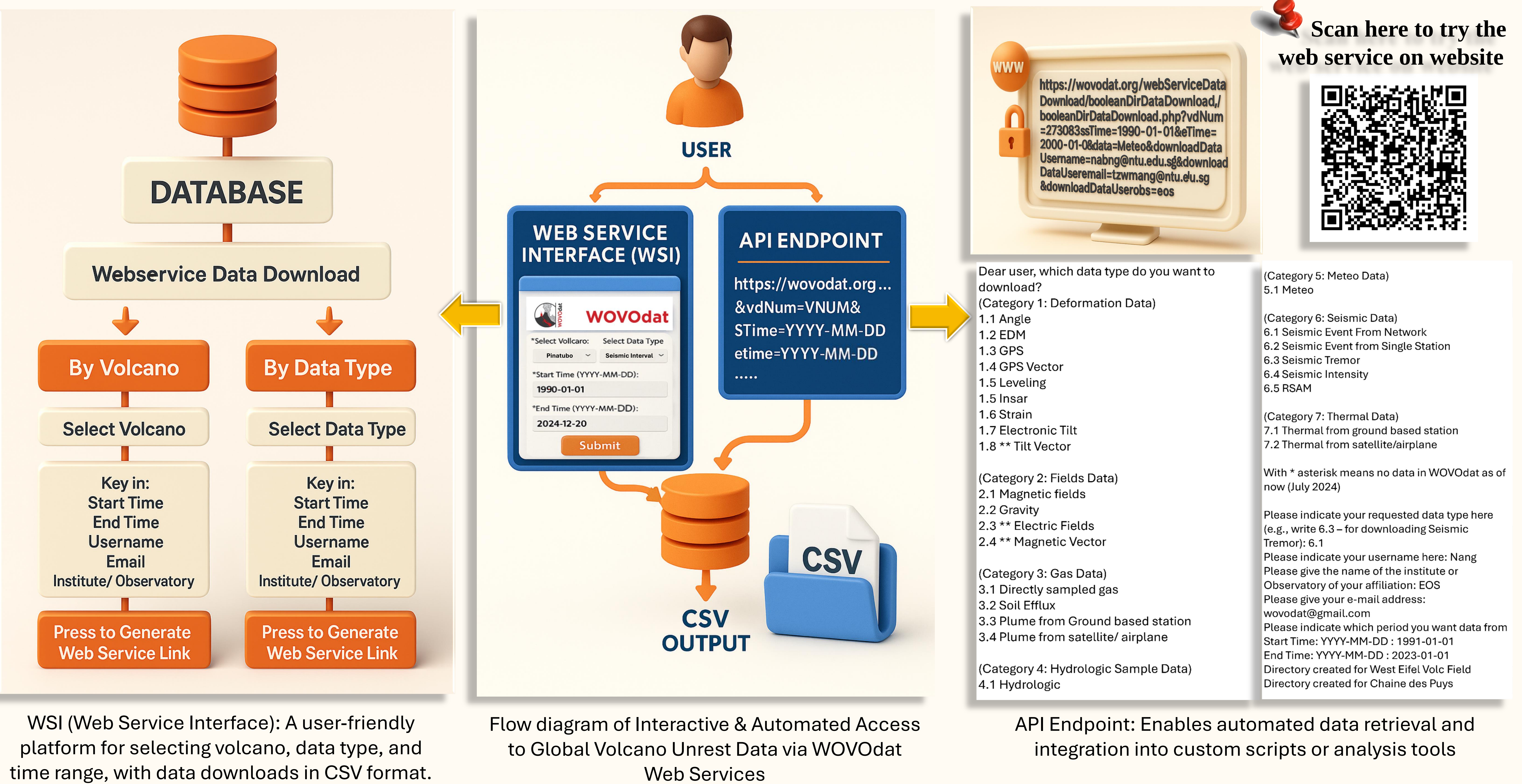
Methods

Database & Data Structure:

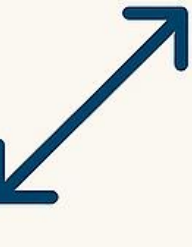
- WOVOdat is built on a relational MySQL database, storing standardized time-series monitoring data across seven parameters (seismic, deformation, gas, thermal, hydrology, meteorology and field).
- Data is hierarchically organized by volcano, data type, and instrument, enabling multi-parameter analysis.
- Rich metadata includes station coordinates, timeframes, data sources, and instrumentation details.

Data Management:

- Observatories upload data in XML/CSV formats, which are converted into WOVOdat's schema with traceable metadata and ownership tags.
- This process ensures data integrity, traceability, and interoperability for diverse datasets.



WHY USE WOVOdat?

-  **Reliable & Transparent**
Standardized data with rich metadata from trusted observatories.
-  **Multi-Parameter Access**
Analyze seismic, deformation, gas, thermal, and more – all in one place.
-  **Scalable & Flexible**
Fits both small case studies and large-scale data-driven research
-  **Insight-Driven**
Supports pattern recognition and eruption forecasting
-  **Community-Oriented**
Built to share, collaborate, and grow with the global research network

WOVOdat MONITORING COVERAGE

- ▲ 372 volcanoes with unrest data
- 🌋 2,735 eruption events
- 📊 1,645 volcanoes with general information

Q DATA TYPE	Volcanoes	Eruption Events
Seismic Event	362	2,670
Seismic Swarm	17	80
GPS	9	49
Single Station Event	12	53
Volcanic Tremor	5	20
Tilt	7	24
Plume	9	65
Plume (Satellite/Air)	7	11
GPV	19	43
InSAR	19	41
Thermal (Satellite)	35	138
Thermal (Ground)	4	21
Sampled Gas	1	1
EDM	1	1
Soil Efflux	1	1
Meteorological	3	8
Hydrology	2	3

Discussion & Future Perspective

- WOVOdat's web tools bridge global observatories and researchers through seamless, standardized data access.
- By supporting both interactive and automated workflows, it enhances forecasting, hazard mitigation, and scientific discovery.
- Ongoing data contributions and collaborations ensure WOVOdat remains a vital and evolving resource for the volcano research community.
- Future developments will expand the database and improve tools, supporting deeper insights into volcanic processes.

For more details,
see our full paper:

