VO-TCS Report on Quality and Assurance

V1.0

Quality assurance (data content)

A variety of reports are produced and issued by the Volcano Observatories (VO) in the world. The reports are often bulletins which provide a synthesis of the volcanic activity of a specific volcano based on monitoring data concerning seismicity, deformation, geochemistry, infrasound and other geophysical imaging, satellite products and images, petrology, phenomenology, field observations, and web camera detection. Reports can be issued with a regular frequency (weekly, monthly) or issued for specific events. These reports also include the current volcano activity level based on a specific scale. A VONA (Volcano Observatory Notification for the Aviation) is issued in accordance with the IAVW-Handbook and the national regulations any time a VO changes the aviation color code and if there are changes in the volcano activity which might affect directly the aviation community. The VONA is the official document which a VO uses to inform the aviation sector about potential danger to air traffic due to volcanic activity and presence of volcanic ash cloud in the atmosphere. These reports are available to the public, often in national language and in English and posted on social networks of the VO.

Periodic Volcano activity reports:

Quality check:

VO reports are compiled by observatory specialists with monitoring duties under the responsability of the VO scientist-in-charge together with other specialists dedicated to research activities according to the IAVCEI guidelines (https://www.iavceivolcano.org/guidelines/) and specific requirements of stakeholders. The content and the information disseminated goes through an internal peer-review process in order to guarantee the consistency of the data shown and to provide a robust and consolidated interpretation of the data. Such reports are typically a summary of the activity over a medium and long-term period and, as such, the data shown in the report are reviewed and checked for their quality, although the data presented will be associated to uncertainties intrinsic to the nature of monitoring active volcanic and seismic processes.

The bulletins issued on specific events are primarily factual such as felt earthquakes. When a confirmation is required, the authenticity of phenomena are cross-checked with the population and the authorities. If required, observatory scientists will organize field surveys or overflights (helicopter, drone) or review other remote-sensing data (e.g. satellite date) to confirm observations and quantify them with scientific expertise.

Guidelines on how to prepare a Volcano Activity report:

These reports follow a template defined by the issuing Institutions. In this sense reports provided by different Institutions will show different reporting styles. But among the same Institutions the reports are all consistent in their form, content and structure.

Reports respect their frequency of issuance and provide information in a regular, structured, systematic and exhaustive format with a standardized and systematic data visualization. They provide factual comparative data that can be tracked backed in time over a time window longer than the report's time window, but it is fundamental for the reports to also provide clues to understand the observations, conclusive sentences on the tendencies observed, contextual information and validate robust working hypotheses on the overall data and observations. The VO are considered the permanent expert institutions and as such it is important that the reports provide the minimum level of contextualization of the observations especially given that they usually end by stating the current volcano activity level. The reports ought to be accessible to the general public and authorities but must not oversimplify the scientific data to a point that they do not provide the required information and ability to comprehend the processes at work. To be efficiently informative, the reports summarize the key points including the level of activity in a summary section in the front of the report, clearly visible, and then proceed with more systematic review of the different contributing disciplines. The reports summarize the various links where the information can be found. The reports is clearly dated and state their period of validity, any limitations of the data, and they are signed by the responsible authority. They clearly shows the logo of the institution that issues the report.

At IMO the Volcano Weekly Report is issued each Wednesday and it accounts for the main outcomes of the weekly meeting, which occurs each Thursdays. Specialists on different fields together with those taking shift in the Natural Hazard service work together to compile the report and decide on the main content of the report.

VONA:

Quality check:

Such reports are usually compiled by the persons on duty. The content of such reports might go under a internal peer-review process, but, occasionally, the temporal constraints for issuing a VONA does not allow for a refined check. The data issued in a VONA might be affected by some uncertainty.

Guidelines on how to prepare a VONA:

The VONA report structure and content follow a standard as defined by ICAO within the IAVW-Handbook (https://www.icao.int/airnavigation/METP/MOGVA%20Reference%20Documents/Handbook%20on%20the%20IAVW,%20Doc%209766.pdf) as well as in the Guidelines for Volcano Observatory (http://wovo.bo.ingv.it/assets/docs/gvo2009s.pdf).

At IMO a VONA is sent out by the Natural Hazard specialist on duty whenever it is needed. If time allows other specialists might be in charge of editing and issuing the VONA. A dedicated system has been developed to make the procedure of editing it easy and fast. Data stored in the volcano database is queried so that some background information is automatically filled in the VONA. Then, the VONA is sent out via email and available on the IMO's web-page.