



Credit: Hilda Ríos/EFE/EPA

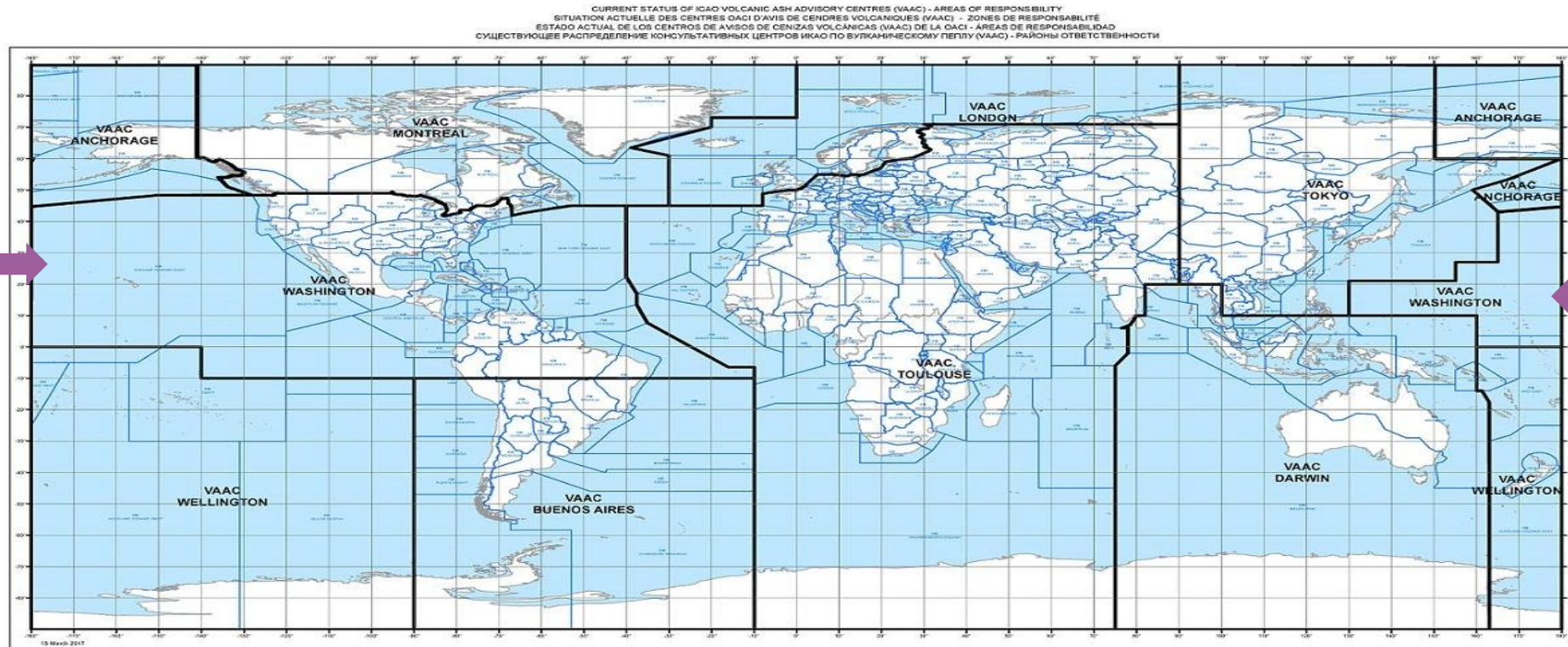


Washington Volcanic Ash Advisory Center

Collaboration between the Washington VAAC, the State Volcano Observatory and the Meteorological Watch Office

**Volcano Surveillance Workshop on International Airways
June 17-20, 2024**

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- **9 Volcanic Ash Advisories Centers (VAAC) around the globe**
- Roughly 20 State Volcano Observatory (SVO) groups and 23 Meteorological Watch Offices (MWO) within the Washington VAAC Area of Responsibility (AOR)
- **14 volcanic ash analyst trained and certified at the Washington VAAC - 24/7/365**

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Current and future products by the Washington VAAC

- Volcanic Ash Advisory (VAA)
- Volcanic Ash Graphic (VAG)
- HYSPLIT – ARL managed and disseminated by Senior Duty Meteorologist (SDM) from the National Weather Service (NWS)/National Center of Environmental Prediction (NCEP) – *Used in operations by Washington VAAC*
- Quantitative Volcanic Ash (QVA). Currently in the planning phase and will become an ICAO Annex 3 recommended practice by November 2025 and a standard practice for all nine VAAC by November 2029.

FVXX22 KNES 031506
VA ADVISORY
DTG: 20211103/1506Z

VAAC: WASHINGTON

VOLCANO: RUIZ 351020
PSN: N0453 W07519

AREA: COLOMBIA

SUMMIT ELEV: 17457 FT (5321 M)

ADVISORY NR: 2021/289

INFO SOURCE: GOES-16. NWP MODELS.

ERUPTION DETAILS: CONS VA EMS

OBS VA DTG: 03/1440Z

OBS VA CLD: SFC/FL190 N0455 W07519 - N0453 W07437
- N0437 W07441 - N0452 W07520 - N0455 W07519 MOV
SE 15KT

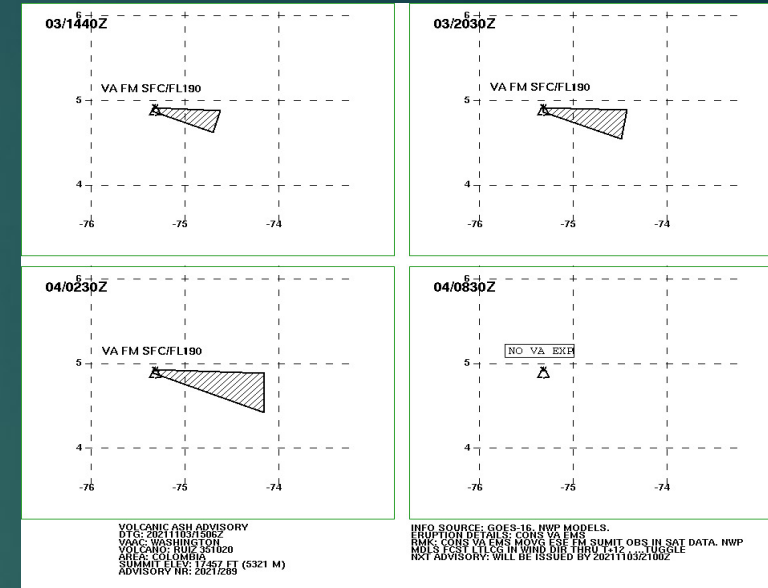
FCST VA CLD +6HR: 03/2030Z SFC/FL190 N0455 W07519
- N0453 W07425 - N0432 W07429 - N0452 W07519 -
N0455 W07519

FCST VA CLD +12HR: 04/0230Z SFC/FL190 N0455
W07520 - N0453 W07409 - N0425 W07410 - N0453
W07520 - N0455 W07520

FCST VA CLD +18HR: 04/0830Z NO VA EXP

RMK: CONS VA EMS MOVG ESE FM SUMIT OBS IN SAT
DATA. NWP MDLS FCST LTLGG IN WIND DIR THRU T+12.
...TUGGLE

NXT ADVISORY: WILL BE ISSUED BY 20211103/2100Z



Ruiz November 3, 2021 ash emission

VAA/VAG issued on November 3rd 2021 for Ruiz volcano in Colombia

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Collaboration and interaction between the SVO, the MWO, and the W-VAAC

- Most interaction is by email – SIGMETs, NOTAM, ASHTAM Daily Reports, VONA, observatory updates, seismic reports. *Some correspondence is through NWSChat.*
- **Contact by Washington VAAC is mostly through email due to language differences between both groups.** *Works well, but can be delayed. Much better when through NWSChat.*
- Communication has increased with some SVO based on the help of the British Geological Survey (BGS) and the connections BGS has with SVO groups globally.
- **Some SVO do not allow access to particular volcano cams for the Washington VAAC.** **We need that access for improved operations to our aviation users.**

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Biggest Challenges for each group

- **Language differences** – not just a different language problem, but an “understanding” problem.
- **For many MWO, SVO across W-VAAC AoR manpower issues** – many tasks for just a few scientists that cause communication problems and/or lack of information flow.
- Change in leadership and protocols within the different science groups.
- **Technology and financial issues** – Some groups have difficulty moving forward even though they want to increase collaboration and the exchange of information.
- Lack of notification when webpages and social media accounts change, or knowing where information is posted by SVO and/or MWO.

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Ways the Washington VAAC, SVOs and MWOs have tried to increase communication and build relationships between our groups

- As mentioned previously, the help from BGS has been very beneficial to the VAAC.
- **Continued relationship development through collaboration on studies of previous eruptions, sharing of satellite imagery, and other information on volcanic activity.**
- ICAO literature and communication on what is needed from the SVO for improved operations at the VAAC and what can be provided to the SVO from the VAAC
- **Interaction and collaboration that takes place during an eruption, and resulting relationships development.**
- **An increased presence in NWSCChat, along with invitations to join. This has been the best way to increase communication.**

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Information the Washington VAAC Receives

IG Instituto Geofísico


INSTITUTO GEOFÍSICO
ESCUELA POLITÉCNICA NACIONAL
 Campus Ing. José Rubén Orellana

AVISO DEL OBSERVATORIO DE VOLCANES PARA LA AVIACIÓN
VONA N° 2021-992

Quito, 2021-11-02 07:11

Información General
 Volcán: REVENTADOR 352010
 Ubicación: S0° 4' 28.816" O77° 38' 34.268"
 Cima: 3539.0msnm - 11610.75pies
 Área: Ecuador

Reporte de emisión de ceniza
 Fecha - UTC: 20211102 / 1211Z
 Clave Aeronáutica actual: Naranja
 Clave Aeronáutica anterior: Naranja
 Fuente: Instituto Geofísico - EPN
 Estado de actividad: Erupción Ocurrida
 Tiempo de inicio de la erupción - UTC: 20211102 / 1211Z
 Duración de la erupción: No conocida
 Altura de la nube volcánica: >1000msnc Dirección de la nube volcánica: Nor-Este
 Fuente de altura de nube de ceniza volcánica: Cámara Copete.
 Resumen de la actividad volcánica: Emisión de gases y ceniza.
 Próxima notificación: Se emitirá un nuevo VONA si las condiciones cambian significativamente o si el código de color cambia.



Emisión de gases y ceniza.

Contacto:
 Instituto Geofísico - EPN
 Meteorología Aereopuerto José Joaquín de Olmedo. Fax: (04)2925145
 Información de vuelo. Fax: (04)2925047
 Centro de Control Aéreo (04)2924219 - (04)2925495

MOTHES A. VILLARREAL E
[Instituto Geofísico](http://Instituto.Geofisico)
 Escuela Politécnica Nacional

Teléfonos: 59322225655; 59322225627; Fax: 59322567847
 Dirección: Av. Ladrón de Guevara E11-253 - Fac. Ing. Civil y Ambiental - 6to Piso
 Pagina Web: www.igepn.edu.ec Email: geofisico@igepn.edu.ec
 Apartado Postal 2759 - Quito, Ecuador

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SERVICIO GEOLOGICO COLOMBIANO

MINISTERIO DE MINAS Y ENERGÍA

DG Dirección de Geodinámicas
 OBSERVATORIO VOLCANOLÓGICO Y SISMIOLÓGICO DE MANIZALES

NOTIFICACIÓN DEL OBSERVATORIO DE VOLCANES PARA LA AVIACIÓN - VONA

Emitido:	20240519/0942Z
Volcán:	Volcán Nevado del Ruiz 351020
Clave de color aeronautica actual:	YELLOW
Clave de color aeronautica previa:	yellow
Fuente:	SERVICIO GEOLOGICO COLOMBIANO
Número de notificación:	4287 - 2024
Ubicación Volcán:	4° 14.9167' N, 75° 5.3667' W
Área:	Colombia
Elevación de la cima:	5321 m (17453 ft)
Resumen de la actividad volcánica:	El estado de alerta por actividad volcánica continúa en alerta Amarilla : Volcán activo con cambios en el comportamiento del nivel base de los parámetros monitoreados y otras manifestaciones. Para ver en detalle la explicación de este estado consultar el siguiente enlace: Esquema estados de alerta por actividad volcánica en Colombia.
Altura de la nube de ceniza volcánica:	500 m (1640 ft) medidos sobre la cima del volcán. Es posible que la altura sea mayor a la observada al momento del reporte. Altura estimada a una distancia entre 4.5 y 25 km de la cima del volcán
Otra información de nube de ceniza volcánica:	Columna densa y con dirección de dispersión hacia el Occidente - Suroccidente.
Observaciones:	
Contactos:	Servicio Geológico Colombiano (SGC) SGC-Manizales@sgc.gov.co Avenida 12 de Octubre # 15-47. Manizales. Colombia, Sur América Tel. +57 (606) 8843004 extensión 8206 - 8843005 - 8843007 Fax. +57 (606) 8843018 Conmutador 8200 www.sgc.gov.co

BOLETÍN VOLCANOLÓGICO ESPECIAL INSIVUMEH
 Prevención para una mejor nación

Guatemala, 19 de mayo de 2021, 08:15 horas (Hora Local)
BOLETÍN VOLCANOLÓGICO ESPECIAL BEPAC-79-2021
ACTUALIZACIÓN DE LA ACTIVIDAD
VOLCÁN PACAYA (1402-II)
 Tipo de actividad: Estrembolina. Morfología: Estrato volcán compuesto
 Localización geográfica: 14°22'50" Latitud N; 90°36'00" Longitud W. Altura: 2552 msnm.

Desde el día 15 de mayo el volcán de Pacaya presentó un cambio en su patrón eruptivo, el flujo de lava activo en las últimas semanas se detuvo, la actividad principal actualmente se encuentra en el cráter Mackenney, esta actividad consta de periodos de constante emisión de columnas de gases y ceniza a una altura de hasta 3500 msnm (11.483 pies) que se desplazan en dirección del viento y algunas explosiones de características débiles y moderadas que expulsan balísticos a una altura de hasta 100 metros sobre el cráter, se ha reportado en caída de ceniza en las comunidades como San Francisco de Sales, Concepción El Cedro, Aldea El Patrocinio y San Miguel Petapa.




Fig. no. 1: Columna de ceniza desplazándose en dirección norte. Fotografía tomada por el observatorio del volcán de Agua OVAGU, INSIVUMEH.

Se espera que esta actividad continúe por los siguientes días o semanas por lo que se espera caída de ceniza en las comunidades alrededor del volcán dependiendo la dirección del viento. **No se descarta que se generen periodos de alta explosividad en las próximas horas o días y/o surgimiento de flujos de lava en los distintos flancos del volcán de Pacaya.**

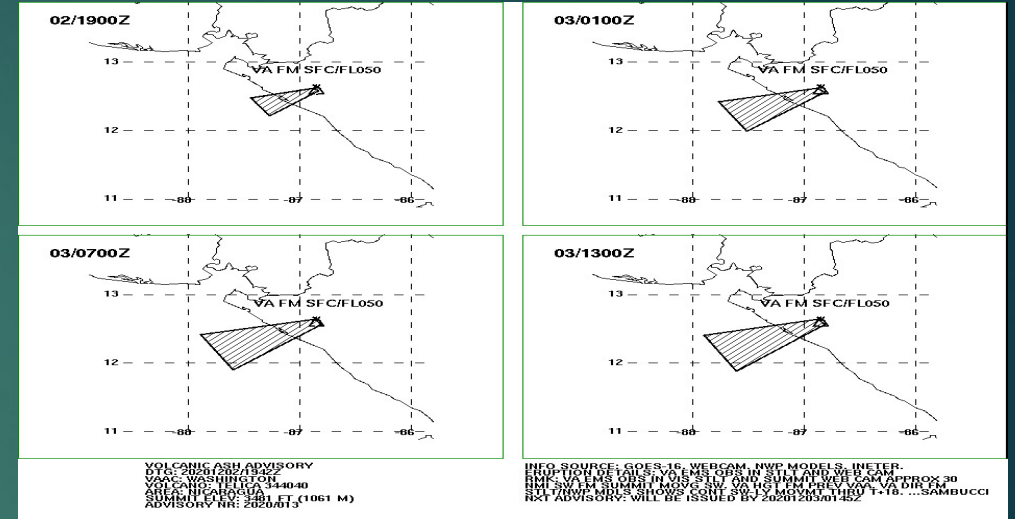
INSIVUMEH mantiene la vigilancia visual e instrumental de la actividad volcánica a través de las estaciones sísmicas y observadores de OVPAC.

GOBIERNO DE GUATEMALA INSTITUTO NACIONAL DE ESTADÍSTICA Y CENSOS
INSIVUMEH Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología

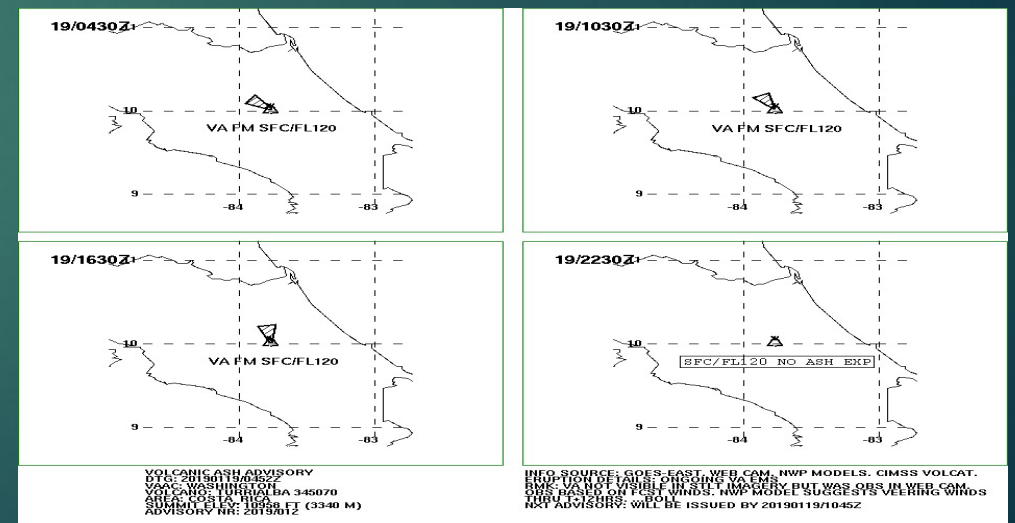
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What information is crucial by the W-VAAC

1. Volcanic ash Flight Level (FL)
2. **Direction/movement of volcanic ash**
3. Content of volcanic ash. Is it large ash load, mostly gases or an even combination?
Confirmation of ash cloud will become more important in the future
4. **What is the current state of the volcano?**
Still erupting, increased activity, decreased activity or same?



Telica volcano in Nicaragua – December 02, 2020

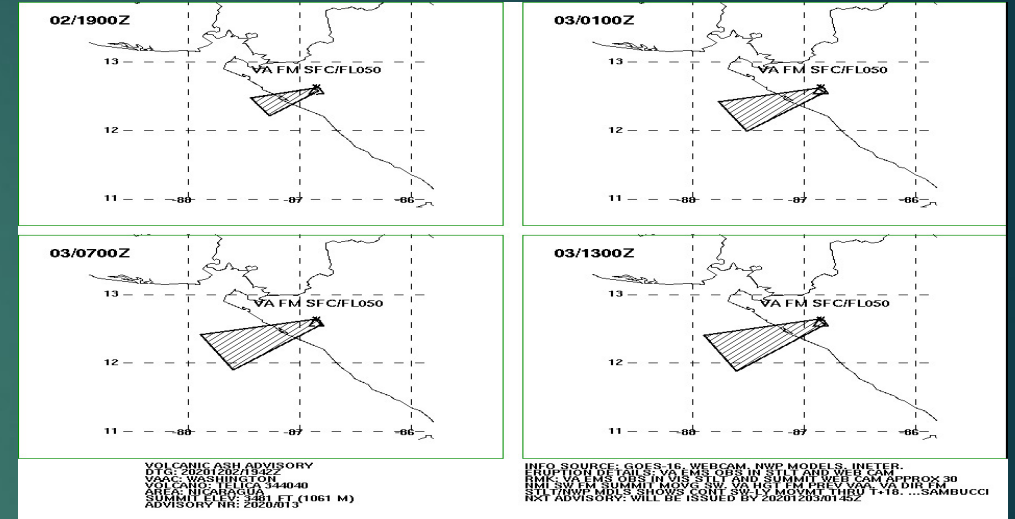


Turrialba volcano in Costa Rica – November 19, 2010

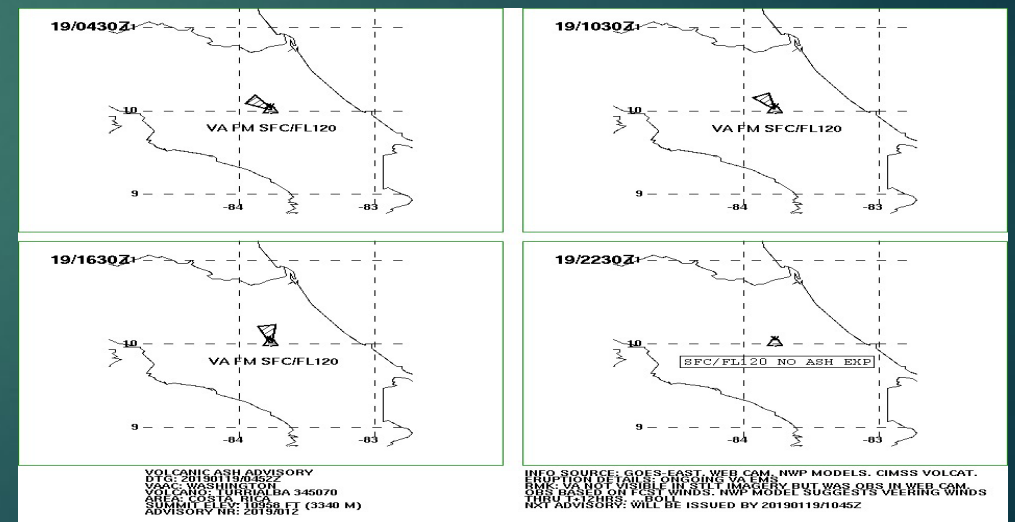
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Why is the information crucial for Washington VAAC

1. Information is needed by users such as domestic and international airlines
2. **For modeling aspects – HYSPLIT, ASH3d**
3. For the creation of our Volcanic Ash Advisory and Volcanic Ash Graphic and eventually, Quantitative Volcanic Ash information
4. **To know when to start, continue and end ash advisories**



Telica volcano in Nicaragua – December 02, 2020



Turrialba volcano in Costa Rica – November 19, 2010

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Conclusion

1. The information provided by the SVO and MWO is critical to W-VAAC operations. Any way to improve that communication will be valued and W-VAAC will work with groups to make that much easier.
2. **The information we provide to the SVO and MWO will continue to improve information flow and communication between our groups and other users.**
3. The best way that will be accomplished efficiently and timely is for all to agree on using the same, single manner and/or information exchange platform.
4. NWSChat could be one of those ways. For information on NWSChat, please contact Jamie Kibler at Jamie.Kibler@noaa.gov

The conversation on how we do this can start today!

Washington Volcanic Ash Advisory Center

Thank You

Jamie.Kibler@noaa.gov

Washington VAAC Manager



Credit: University of West Indies – Soufriere St Vincent April 11th 2021
Eruption