# Redoubt Volcano Eruption/Ash Synopsis – November 2008 – July 2009

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# Redoubt Volcano Eruption/Ash Synopsis

Coordinates: N6028 W15245 Summit Elevation: 3108 m (10197 ft) Initial eruption: March 22, 2009 0638 UTC

The 2009 eruption of Redoubt Volcano began on March 22 at 0638 UTC. The eruption was characterized by powerful ash explosions with resulting plumes between 30,000 to 60,000 feet above sea level. The Alaska Volcano Observatory (AVO) observed eleven major explosive events during the first week, and a total of 19 events over the 14 day explosive eruptive period in March and early April.

Redoubt Volcano began showing activity in November 2008. Seismic signals remained slightly elevated through December and January and increased significantly in February. Degassing of the volcano released large amounts of steam and gas plumes that were connected to strong seismic signals throughout February and early March. The volcano erupted explosively March 22<sup>nd</sup> to April 4<sup>th</sup> and then transitioned to a lava dome building phase. Seismicity remained elevated above background levels and reflected the ongoing process of dome growth and occasional rock falls. In addition, AVO reported a vapor and gas cloud rising above the volcano and below 15,000 feet above sea level during this period. On June 30, 2008, AVO downgraded Redoubt to color code Yellow as the seismic activity level, thermal measurements, and steaming were consistent with a cooling lava dome.

Redoubt Volcano is located on the western side of Cook Inlet, 170 km (106 mi) southwest of Anchorage and 82 km (51 mi) west of Kenai within Lake Clark National Park. Redoubt is a stratovolcano which rises to 10,197 feet above sea level. The following report uses information gathered from Alaska Volcano Observatory press releases, Anchorage VAA's, SIGMETs, and PIREPS. All Volcanic Ash Advisories (VAA's) cited in this report were issued by the Volcanic Ash Advisory Center (VAAC) in Anchorage, AK.

# November, 2008 – Times in UTC

#### 05/2352 <u>Alaska Volcano Observatory Bulletin:</u>

#### AVO upgraded color code to Yellow.

Over the past several months, AVO has detected potentially significant changes in gas emission and heat output from Redoubt Volcano. These changes are a departure from long-observed background activity, and therefore, AVO is raising the Aviation Color Code to Yellow and the Volcano Alert Level to Advisory.

#### 14/2105 Alaska Volcano Observatory Bulletin Update:

New FLIR thermal-infrared camera images from last Friday document elevated temperatures in the areas of bare rock and disrupted ice near the summit crater and in a collapse hole within the Drift Glacier.

# January, 2009 – Times in UTC

#### 25/0209 Alaska Volcano Observatory Bulletin Update:

#### AVO upgraded color code to Orange.

Seismic activity at Redoubt volcano has increased markedly. This activity could be precursory to an eruption, perhaps within hours to days. There is no indication that the volcano is currently erupting. AVO is in 24/7 operation.

# February, 2009 – Times in UTC

## 06/2205 <u>Alaska Volcano Observatory Bulletin Update</u>:

#### Color code Orange.

Unrest at Redoubt Volcano continues, though no eruption has yet occurred. Seismic activity at the volcano remains above background levels and has waxed and waned over the last week. Yesterday from 11:18 to about 16:00 AKST, there were several periods of more intense seismic tremor. Since then, nearly continuous low-level seismic tremor has been recorded. Clear web camera images currently show no activity at the volcano. Observers on overflights during the past week reported intermittent steam plumes from the area of the 1989-90 lava dome, continued melting of the upper Drift glacier, and increased water discharge along the lower Drift glacier and into the Drift River. Airborne gas measurements on January 31 and February 2 recorded levels of the magmatic gas CO2 several times greater than the value recorded on November 2, 2008. Gas and heat flux, combined with ongoing seismic activity, suggest that new magma has been emplaced within the crust below Redoubt and that it is actively degassing. We do not know the exact depths or volume of the magma; nor is it certain that the magma will continue to rise to the surface. On the basis of current activity, however, the most likely scenario is an eruption similar to or smaller than the 1989-90 eruption. It is somewhat less likely that no eruption will occur or that the volcano has an eruption larger than that of 1989-90. AVO personnel installed two new seismic instruments near Redoubt over the past week, and improved signals coming in from the Redoubt seismic network at AVO's facility in Homer. Staff continues to monitor the volcano 24 hours a day. We will issue further information as it becomes available.

# March, 2009 - Times in UTC

#### 10/0956 Alaska Volcano Observatory Bulletin Update:

#### AVO downgraded color code to Yellow.

The new magma beneath the volcano does not show any signs of upward movement at this time. The volcano remains restless with abnormally high gas emission rates and melting of the summit glacier still evident.

#### 15/1450 <u>Alaska Volcano Observatory Bulletin Update</u>:

#### AVO upgraded color code to Orange.

Seismic activity at Redoubt has increased since about 13:00 AKDT and is continuing. An AVO observation flight reported that a steam and ash plume rose as high as 15,000 ft above sea level and produced minor ash fall on the upper south flank of Redoubt. Last reports are that the plume is now mainly steam. Based on this change in activity AVO is increasing the level of concern and alert level to Orange/Watch.

#### 18/0941 Alaska Volcano Observatory Bulletin Update:

#### AVO downgraded to color code to Yellow.

Following the steam and ash emission on Sunday, March 15, seismicity has declined to levels prior to that event, and no additional emissions have been observed in web camera or satellite images. The new magma beneath the volcano does not show signs of upward movement at this time. The volcano remains restless with abnormally high rates of gas emission and continued melting of the summit glacier.

#### 21/2209 Alaska Volcano Observatory Bulletin Update:

#### AVO upgraded color code to Orange.

AVO is raising the aviation color code to Orange and the alert level to Watch. Seismic activity has continued to increase and conditions may evolve rapidly culminating in an eruption within days to weeks.

#### 22/0656 Alaska Volcano Observatory Update Bulletin:

#### AVO upgraded color code to Red.

An eruption of Mt. Redoubt began at approximately 0638 UTC. AVO has raised the aviation color code to Red and the alert level to Warning. Initial height of the eruption cloud is estimated at less than 20,000 feet above sea level at present.

#### 22/0730 PIREP – ANC UUA:

Over ENA 237045, FL400, TP B747, Volcanic eruption, ash observed above FL400.

#### 22/2226 <u>Alaska Volcano Observatory Update Bulletin</u>:

#### Color code Red.

An eruption of Mt. Redoubt began at approximately 2238 AKDT, March 22, 2009 (0638 UTC). AVO is raising the aviation color code to Red and the alert level to Warning. Initial height of the eruption cloud estimated at less than 20,000 feet above sea level at present.

#### 23/0430 PIREP – ANC UUA:

Over ANC 082050, FL300/ TP UNKN, Distinct ash anvil over Redoubt volcano to approximately FL400.

#### 23/0410 <u>PIREP – ENA UA:</u>

Over ENA185003, FLSFC, thin layer of ash on vehicles in the FAA Flight Service station parking lot.

#### 23/0620 <u>PIREP – ENA UA:</u>

Over ENA 314017, FLSFC, A fine dusting of ash on outside surfaces. Will not be flying.

#### 23/0701 PAZA SIGMET INDIA 1 VALID 230700/231300 PANC:

ANCHORAGE FIR. REDOUBT VOLCANO AT N6029 LAT W15245 LONG HAS ERUPTED. VA BASES FLSFC/TOPS FL400.

#### 23/0809 PAZA SIGMET INDIA 2 VALID 220808/221408:

PANC: ANCHORAGE FIR. VA FROM REDOUBT VOLCANO WTHIN SOUTH CENTRAL ALASKA. VA BASES FLSFC/TOPS FL500. AREA WITHIN 50 NM MCG – 30 NM S TKA – 50 NM NE HOM TO 25 NM S SQA. VA MOVEMENT N AT 65 KT.

#### 23/0814 PAZA SIGMET INDIA 3 VALID 230815/231415:

PANC-ANCHORAGE FIR. VA BASES FLSFC/TOPS FL500. AREA WI 50 NM SE MCG – 30 NM S TKA – 50 NM NE HOM TO 25 NM S SQA. VA MOVEMENT N AT 65 KT.

#### 23/0825 FVAK23 PAWU/VAAC: Anchorage (#2009-1):

Note: All VAAC entries in this report are Volcanic Ash Advisories (VAAs) issued by the Volcanic Ash Advisory Center (VAAC) in Anchorage, AK.

AVO Color Code Red.

Explosive eruption of Mt. Redoubt began at approximately 0638 UTC with subsequent intermittent activity continuing. Observed VA cloud: SFC/FL500 (N6107 W15322 – N6105 W15136 – N6007 W15207 – N6013 W15328 – N6107 W15322) moving north 65 knots. Radar indicates VA to FL500. Pireps verified above FL400.

#### 23/1110 PAZA SIGMET INDIA 4 VALID 231110/231710:

PANC: ANCHORGE FIR. RADAR INDICATES VA FROM REDOUBT LIES WITHIN SOUTH CENTRAL ALASKA. VA BASES FLSFC/TOPS FL400. VA MOVEMENT NORTH AT 5 KT.

#### 23/1115 VAAC: Anchorage (#2009-2):

Intermittent eruption activity continues. Observed VA cloud: SFC/FL400 moving north 55 knots.

#### 23/1243 PAZA SIGMET INDIA 5 VALID 231240/231840:

PANC-ANCHORAGE FIR. VA BASES FLSFC/TOPS AOA FL600. MOVEMENT N AT 55 KT.

#### 23/1543 PIREP TKA UUA:

Over TKA, FL000, Thin layer of volcanic ash on all airport surfaces.

#### 23/1550 PIREP SKW UUA:

Over SKW 180010, FL000, TP TC19, Volcanic ash on ground.

#### 23/1553 PIREP ANC UA:

Over PANC, FLUNKN, TP B734, No evidence of ash and ride smooth through 25,000.

#### 23/1610 PAZA SIGMET INDIA 6 VALID 231600/232200 PANC:

ANCHORAGE FIR. VA FROM REDOUBT WITHIN SOUTH CENTRAL ALASKA MOVING NE. VA BASES FLSFC/TOPS FL600. AREA AFFECTED WI60 NW W TAL – 30 NM NE BIG – 20 NM NE BGQ – 10 NM E JOH – 30 NM SW MDO – 40 NM SW SQA – 60 NM W TAL. VA MOVEMENT NE AT 35 KT.

#### 23/1614 Alaska Volcano Observatory Update Bulletin:

#### AVO color code is RED.

Another phase of vigorous ash eruption began at 0341 UTC. AVO remains at aviation color code Red. The top of the ash cloud is estimated at FL500 based on NWS radar. Winds in the vicinity of the volcano vary with altitude and are expected to carry the ash cloud primarily to the west and north. Seismicity has declined somewhat since the start of the event but remains elevated.

#### 23/1725 VAAC: Anchorage (2009-3):

Explosive eruption 231230 UTC. Observed VA cloud SFC/FL600 moving northeast 35 knots. Remarks: VA below FL200 moving north and west of Redoubt volcano. VA above FL200 moving north and east of Redoubt volcano.

23/1730 PAZA SIGMET INDIA 7 VALID 231725/232325:

PANC-ANCHORAGE FIR. VA BELOW FL200 FROM REDOUBT VOLCANO WITHIN SOUTH CENTRAL ALASKA IS MOVING N AND W. VA ABV FL200 FROM REDOUBT IS MOVING N AND E. VA BASES FLUNK/TOPS FL600.

23/1745 PAZA SIGMET INDIA 8 VALID 231745/232325:

PANC-ANCHORAGE FIR. VA BASES SFC/FL600 MOVING NE 35 KNOTS. VA MOVEMENT NE AT 35 KT.

23/1747 PIREP BIG UUA:

Over BIG 360010, FL065, TP C206, gray to brown haze layer bases at FL090, tops FL140.

23/1940 PIREP ANC UUA:

Over BGQ, FL020, TP C207, aircraft over PAQ observes VA over BGQ.

23/2025 PIREP FAI UA:

Over FAI-TAL, FL065, TP C206, Alaska range obscured, appears to be due to volcanic ash.

23/2030 PIREP ENA UA:

Over ENA 200040, FLUNKN, TP PA31, no ash/sulfur smell west side of Cook Inlet.

23/2050 PIREP GKN UA:

Over GKN 330029, FL280, TP C130, slight ash from GKN moving NE about 50 miles. Appears to be two layers, one at FL280 and another below FL280.

24/2136 PIREP BET UA:

Over BET 090040, FL095, sulfur smell.

23/2211 <u>PIREP SKW UAA:</u>

Over ANC 279046, FL000, TP UNKN, at Judd Lake 1/8 in volcanic ash on the ground.

23/2258 PAZA SIGMET INDIA 9 VALID 232300/240500:

PANC-ANCHORAGE FIR. VA BASES FLSFC/TOPS FL400. VA MOVEMENT NE AT 30 KT.

23/2300 VAAC: Anchorage (#2009-4):

Explosive eruption 231230 UTC. Observed VA cloud SFC/FL400 moving northeast 30 knots. Remarks: VA tops to FL400 PAFA-PAWR. OTRW VA tops below FL300.

23/2310 PAZA SIGMET INDIA 10 VALID 232310/240500:

PANC-ANCHORAGE FIR. VA BASES SFC/FL400. AREA AFFECTED THROUGH 240500Z WI 140 ESE FYU TO 60 ENE ORT TO 50 NNE GKN TO 60 ENE JOH TO 20 SW TKA TO 50 NNE AKN 40 S BET TO 30 E GAL TO 140ESE FYU. VA MOVEMENT NE AT 30 KT.

23/2310 PAZA SIGMET INDIA 11 VALID 232315/240500:

PANC-ANCHORAGE FIR. T-SAT/GOES/AVO/PILOREPORT/RADAR INDICATES THAT VA FROM REDOUBT OLCANO WITHIN SOUTH CENTRAL ALASKA CONTINUES TO OVERSPREAD S CENTRAL AND INTERIOR ALASKA. VA CLOUD INFORMATION...VA BASES FLSFC/TOPS FL400. THE AREA AFFECTED THROUGH 240500Z WI 140 NM ESE FYU - 60 NM ENE ORT - 50 NM NNE GKN - 60 NM ENE JOH - JOH - 20 NM SW TKA - 50 NM NNE AKN - 40 NM S BET - 30 NM E GAL - 140 NM ESE FYU. VA MOVEMENT NE AT 30 KT.

23/2329 PAZA SIGMET INDIA 12 VALID 232335/240500 PANC:

ANCHORAGE FIR. VA WITHIN SOUTH CENTRAL ALASKA CONTINUES TO OVERSPREAD SOUTH CENTRAL AND INTERIOR ALASKA. VA CLOUD BASES FLSFC/TOPS FL400. THROUGH 240500Z AREA WI 140 NM ESE FYU – 60 NM ENE ORT – 50 NM NNE GKN – 60 NM ENE JOH – JOH – 20 NM SW TKA – 50 NM NNE AKN – 40 NM S BET – 30 NM E GAL – 140 NM ESE FYU. VA MOVEMENT NE AT 30 KT.

24/0455 VAAC: Anchorage (#2009-5):

Brief explosive eruption at 0430 UTC. Observed VA cloud SFC/FL500 moving west 15 knots.

24/0455 PAZA SIGMET JULIET 2 VALID 240455/241055:

PANC-ANCHORAGE FIR. GOES/AVO/RADAR INDICATES REDOUBT HAS ERUPTED. VA CLOUD BASES FLSFC/TOPS FL500. VA MOVEMENT W AT 15 KT.

24/0515 PAZA SIGMET INDIA 13 VALID 240515/241115:

PANC-ANCHORAGE FIR. VA BASES SFC/FL300. VA MOVEMENT E AT 20 KT.

24/0530 VAAC: Anchorage (#2009-6):

VA from 231230 UTC eruption. Observed VA cloud SFC/FL300 moving east 20 knots.

24/0604 PIREP MCG UA:

Over MCG 102049, FL090, TP DC6, something impacting windshield but no buildup.

#### 24/0635 PIREP MCG UA:

Over MCG 104010, FL110, SKIMC, picking up sulfur smell and weird taste. Dust particles entering aircraft.

#### 24/0839 PIREP UUA OV:

Over ANC 205115, FL350, TP MD11, intermittent eruptions to FL350 or possibly higher.

#### 24/1010 VAAC: Anchorage (#2009-7):

23/1230 UTC eruption. Observed VA cloud: SFC/FL300 moving east 20 knots. VA becoming rapidly diffuse.

#### 24/1015 PAZA SIGMET INDIA 14 VALID 241015/241115:

PANC-ANCHORAGE FIR. VA IS RAPIDLY DISSIPATING AND MOVING EAST OF AREA. VA BASES FLSFC/TOPS FL300 MOVEMENT E AT 20 KT.

#### 24/1055 <u>VAAC: Anchorage (#2009-8)</u>:

24/0341 eruption. Observed VA cloud SFC/FL500 moving west 15 knots.

#### 24/1055 <u>PAZA SIGMET JULIET 3 VALID 241055/241655</u>:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. AREA AFFECTED THROUGH 241655Z IS WI 60 NM TKA – 50 NM E ENA – 60 NM N AKN – 50 NM N SQA – 60 NM W TKA. VA MOVEMENT W AT 15 KT.

#### 24/1101 VAK01 PAWU 241101 SVAK1:

ANCHORAGE FIR. PAZA SIGMET INDIA 14 IS CNL WEF 241103 UTC.

#### 24/1558 WVAK02 PAWU 241558 WSVAK2:

ANCHORAGE FIR. PAZA SIGMET JULIET 3 IS CNL WEF 241600 UTC.

#### 24/1705 PIREP DLG UA:

Over DLG, FL150, TP C441, negative ash over entire route ANC MCG DLG. An area of brown haze near SQA 13K ft. No smell. Good 20mi visibility and clear above FL300.

#### 24/1830 VAAC: Anchorage (2009-9):

Redoubt volcano emitting steam plume. Observed VA DTG: 24/1800 UTC. No VA EXP. Pilot reports indicated Redoubt volcano currently emitting a steam plume to FL200.

#### 24/1836 <u>PIREP ANC UA</u>:

Over ENA 255055, FLUNKN, TP B744, steam plume from Redoubt to FL200 extends 30 miles to the northwest.

#### 24/1940 PIREP LVR UA:

Over LVR, FLVFR, TP PA31, East end of Lake Clark pass, good visibility, but haze in pass looks brown.

#### 24/2032 PIREP ANC UA:

Over ILI 048044, FL200, TP SW4, Redoubt steaming to FL140. White. No ash. No smell.

#### 25/0030 VAAC: Anchorage (2009-10):

Redoubt volcano continues to emit steam plume. No VA exp.

#### 25/0630 <u>VAAC: Anchorage (2009-11)</u>:

Steam plume still being emitted. No volcanic ash present.

#### 25/1353 <u>Alaska Volcano Observatory Update Bulletin:</u>

A small explosion occurred at Redoubt volcano at 1312 UTC. The cloud height is estimated at FL150 and is drifting north to northwest of the volcano. The vent lasted approximately ten minutes.

#### 25/1400 VAAC: Anchorage (2009-13):

Minor seismic eruptive activity noted at 1345 UTC. No ash observed on satellite or radar. Any possible ash which may have been emitted is expected to remain below FL150. Volcano remains obscured by clouds and snow.

#### 25/1837 PIREP ANC UA:

Over ANC 173022, FL100, TP B747, aircraft reported increase in air temperature and sulfur smell between 080 and 100. Normal temperature and no smell above 100.

#### 25/2000 VAAC: Anchorage (2009-14):

Redoubt volcano emitting steam plume at or below FL150. Minor seismic activity continues. No VA observed on satellite imagery or radar. No VA reported in Pireps.

#### 25/2200 <u>VAAC: Anchorage (2009-15)</u>:

Eruption ended. No VA seen on satellite imagery or radar. Minor seismic activity continues. Eruptive activity could resume at any time.

#### 25/2335 <u>Alaska Volcano Observatory Update Bulletin:</u>

#### AVO downgraded color code to Orange.

Seismic activity has decline over the last 36 hours, although there have been several brief increases in seismicity associated with low-level ash emissions. The last known ash emission was at 5:12 AKDT. The plume did not extend above 15,000 feet. Based on the level of seismic activity, AVO is lowering the aviation color code to Orange and the volcanic alert level to Watch.

#### 26/1647 PAZA SIGMET INDIA 1 VALID 261646/262246:

PANC-ANCHORAGE FIR. VA BASES SFC/FL300. VA MOVEMENT SE 10 KT.

#### 26/1656 Alaska Volcano Observatory Update Bulletin:

AVO upgraded color code to Red.

AVO is raising the aviation color code to Red and the alert level of Warning. An explosive event began at approximately 1734 UTC and has produced an ash cloud to at least FL300.

#### 26/0028 PIREP ENA UUA:

Over ENA 236046, FL100, TP PA31, very vigorous steam eruption from Redoubt volcano to FL160.

#### 26/0315 PIREP ENA UA:

Over ENA 236090, FL330, TP B737, 10 nm white, dense cloud surrounding Mt. Redoubt but no apparent VA.

#### 26/1715 PAZA SIGMET INDIA 2 VALID 261720/26230:

PANC-ANCHORAGE FIR. REDOUBT VOLCANO ERUPTED 26/1634. VA BASES SFC/FL300. VA MOVEMENT SE AT 25 KT.

#### 26/1720 VAAC: Anchorage (2009-16):

Explosive eruption at 26/1634 UTC. Observed VA cloud SFC/FL300 (N6020 W15246 – N6017 W15110 – N5925 W15326 – N6020 W15246) moving southeast 25 knots.

#### 26/1742 Alaska Volcano Observatory Update Bulletin:

A large eruption began approximately 1724 UTC. National Weather Service reports the cloud height to be at least 65,000 feet above sea level.

# 26/1746 PAZA SIGMET INDIA 3 VALID 261750/262350 PANC – ANCHORAGE FIR. REDOUBT ERUPTED EXPLOSIVELY AGAIN AT 26/1734 UTC. VA BASES FLSFC/TOPS FL650. VA MOVEMENT

E AT 25 KT.

26/1750 <u>VAAC: Anchorage (2009-17)</u>:

Explosive eruption at 26/1734 UTC. Observed VA cloud SFC/FL650 moving east 25 knots.

26/1910 PIREP HOM UUA:

Over HOM 262018, FL250, TP SF34, dark gray VA cloud bases 100 tops FL250-260 extending to the NE. Higher VA cloud appears to be turning SW. No ash visible between HOM 262018 and ANC at FL250.

26/2021 PIREP ENA UUA:

Over ENA, FLSFC, skies are clear of clouds, can now see bands of ash from the north to the south.

26/2033 <u>VAAC: Anchorage (2009-18):</u>

Explosive eruption at 26/1724 UTC. Observed VA cloud SFC/FL500 moving east 20 knots. Light ashfall reported at Homer.

26/2047 PIREP HOM UUA:

Over PGM, FLDURC, TP C207, very light volcanic ash just started falling at PGM. SFC winds westerly.

26/2300 PIREP ANC UUA:

Over BGQ, FL110, TPB190, Dense ash cloud 080-110 BGQ to Mt. Susitna.

26/2326 PAZA SIGMET INDIA 5 VALID 262325/270240:

PANC-ANCHORAGE FIR. VA BASES SFC/FL500. MOVEMENT E AT 20 KT.

26/2335 PAZA SIGMET INDIA 6 VALID 262325/270240:

PANC-ANCHORAGE FIR. VA BASES FLSFC/TOPS FL500. MOVEMENT E AT 20 KT.

26/2340 PIREP ANC UUA:

Over ANC 090040, FL120, TP DC6, new Redoubt eruption with plume to FL200 moving SSE.

27/0010 PIREP ANC UUA:

Over ENA 090010, FL110, Bases of ash cloud FL150, 10 miles north of airplane position decreasing toward Mt. Redoubt. Plume moving east at 050 heading.

27/0146 PIREP ANC UUA:

Over ENA 236046, FL250, TP B737, ash from Redoubt volcano to FL300+. Extends slightly south but mostly over volcano with lightning observed.

27/0300 VAAC: Anchorage (2009-21): Low emissions. Observed VA cloud SFC/FL500 moving east 25 knots. Light ashfall reported by Elmendorf AFB. 27/0300 PAZA SIGMET JULIET 1 VALID 270300/270900: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. VA MOVEMENT E AT 25 KT. 27/0318 PAZA SIGMET JULIET 2 VALID 270300/270900: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. VA MOVEMENT E AT 25 KT. 27/0328 PIREP ANC UUA: Over ENA 204030, FLDURD, top of ash cloud to FL300 moving to the northwest. 27/0733 PIREP ANC UUA: Over ANC, FLUNKN, AVO reports a new eruption to FL400. 27/0902 PAZA SIGMET JULIET 4 VALID 270090/271500: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL400. VA MOVEMENT NE AT 20 KT. 27/0905 VAAC: Anchorage (2009-22): Eruption at 27/0747. Observed VA cloud SFC/FL400 moving northeast 20 knots. Advisory covers new eruption of 0747 UTC. Ash from previous eruption which had moved into Gulf of Alaska no longer detectable. 27/1413 PAZA SIGMET JULIET 5 VALID 271415/272015: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL300. VA MOVEMENT NE AT 15 KT. 27/1430 VAAC: Anchorage (2009-23): Lingering ash from earlier 26/1724 UTC and latest 27/0747 UTC eruptions. Observed VA cloud SFC/FL300 moving north 15 knots. Very light volcanic ash reported at PAMR 27/1253 UTC and at PAVD between 0930-1200 UTC.

27/1710 VAAC: Anchorage (2009-24):

Eruption to FL500 at 27/1640 UTC. Observed VA cloud SFC/FL500 moving northeast 25 knots.

27/1710 PAZA SIGMET JULIET 6 VALID 271710/272310:
PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. VA
MOVEMENT NE AT 25 KT.

#### 27/2000 <u>Alaska Volcano Observatory Update Bulletin:</u>

An eruption of Redoubt volcano occurred at approximately 0748 UTC. National Weather Service reports the cloud height to be at approximately 32,000 feet above sea level.

#### 27/2045 VAAC: Anchorage (2009-25):

Explosive eruption at 27/1640 UTC. Observed VA cloud SFC/FL400 moving northeast 25 knots. If no new eruptions occur, the HI level portion of the ash plume expected to be northeast of Anchorage by 28/0300 UTC.

#### 27/2045 PAZA SIGMET JULIET 7 VALID 272045/280245:

PANC-ANCHORAGE. REDOUBT ERUPTED AT 27/1640 UTC. VA CLOUD SFC/FL400. VA MOVEMENT NE AT 25 KT.

#### 27/2330 PIREP CDV UA:

Over JOH, FL200, TP B737, thin, brownish, tinted cloud FL180-FL200 50 nm north of JOH and about over VDZ.

#### 27/2335 PIREP BIG UUA:

Over BIG 090030, FL090, TP PA31, bases estimated 110/RM. Ash cloud visible to the south.

#### 27/2343 Alaska Volcano Observatory Update Bulletin:

Eruption of Redoubt volcano continues. The eruption has been characterized by powerful ash explosions with the resulting plumes reaching between 30,000 to 60,000 feet above sea level. AVO has observed 11 major explosive events over the last week. The National Weather Service continues to track the ash cloud from the latest explosion, which is tracking toward the north-northwest. Based on its past activity, the current Redoubt eruption is expected to continue for weeks to months. During this time, a cycle of relatively quiet periods of lava growth followed by explosive episodes of dome destruction could take place. Further explosions pose an ongoing threat of lahars in the Drift River Valley, trace to minor ash fall throughout south-central Alaska, and ash-related impacts to aviation.

#### 27/2355 PIREP MCG UUA:

Over MCG 130066, FL110, TP DC6, no ash, no sulfur smell, looking toward Mt. Redoubt anvil-shaped cloud moving

#### 28/0130 PIREP ANC UA:

Over TKA 278010, FLDURD, brown haze ten miles south of TAGER at FL360, clear at FL370. Encountered sulfur smell durd at FL320, returned to FL350 and still encountered sulfur smell, climbed to FL370 and was in the clear at FL370.

28/0135 <u>PIREP ANC UUA:</u>

Over PANC, FLUNKN, ash on aircraft on the ground.

28/0145 PIREP ANC UUA:

Over ANC 062020, FLSFC, TP UNKN, VA falling in vicinity of Huffman Road and New Seward Highway.

28/0149 Alaska Volcano Observatory Update Bulletin:

An explosive eruption occurred at approximately 1735 UTC. National Weather Service reports the cloud height to be approximately 40,000 feet above sea level on radar.

28/0230 PIREP ANC UUA:

Over ANC 052006, FLSFC, Ted Stevens Anchorage International Airport is officially closed at the moment due to VA.

28/0245 VAAC: Anchorage (#2009-28):

Redoubt volcano eruption at 28/0134 UTC. Observed VA cloud SFC/FL400 (N6422 W15322 – N6345 W14349 – N6232 W14423 – N6247 W14637 – N6043 W14720 – N5939 W15122 – N6014 W15403 - N6422 W15322) moving northeast 20 knots. Observed area includes VA from previous eruptions.

28/0245 PAZA SIGMET JULIET 8 VALID 280245/280845:

PANC-ANCHORAGE FIR. REDOUBT ERUPTED AT 28/0134 UTC. VA CLOUD SFC/FL400. VA MOVEMENT NE AT 20 KT.

28/0336 Alaska Volcano Observatory Update Bulletin:

Another explosive eruption occurred at approximately 0323 UTC. NWS reports VA cloud top above 45,000 feet above sea level.

28/0345 PAZA SIGMET JULIET 9 VALID 280345/280945:

PANC-ANCHORAGE FIR. REDOUBT ERUPTED 28/0325 UTC. VA CLOUD SFC/FL500.VA MOVEMENT NE AT 20 KT.

28/0404 PAZA SIGMET JULIET 10 VALID 280345/280945:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. VA MOVEMENT NE AT 20 KT.

28/0425 VAAC: Anchorage (#2009-30):

Redoubt volcano eruption at 28/0325. Observed VA cloud SFC/FL500 moving northeast 20 knots. Observed area includes VA from previous eruptions.

28/0936 PAZA SIGMET JULIET 11 VALID 280945/281545:
PANC-ANCHORAGE FIR. VA CLOUD SFC/FL500. VA
MOVEMENT NE AT 20 KT.

#### 28/0945 <u>VAAC: Anchorage (2009-31):</u>

Frequent eruptions continue with the last eruption at 28/0918 UTC. Observed VA cloud SFC/FL500 moving northeast 20 knots. VA from previous eruptions still observed on satellite imagery and radar.

#### 28/1540 PAZA SIGMET JULIET 12 VALID 281545/282145:

PANC-ANCHORAGE FIR. REDOUBT ERUPTED 28/0918. VA BASES FLSFC/TOPSFL300. VA MOVEMENT NE AT 20 KT.

#### 28/1545 <u>VAAC: Anchorage (2009-32):</u>

VA from 28/0918 UTC eruption SFC/FL300 moving northeast 20 knots. VA becoming difficult to find on satellite imagery.

#### 27/1706 PIREP KTN UA:

Over KTN, FL320, TP B734, no sulfur smell, no visible haze.

#### 28/2100 VAAC: Anchorage (2009-33):

28/0918 UTC eruption. Observed VA cloud SFC/FL200 moving northeast 10 knots. Haze and sulfur smells above FL200 associated with aerosol cloud. No reports of VA above FL200.

#### 28/2100 PAZA SIGMET JULIET 13 VALID 282100/290300:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL200. VA MOVEMENT NE AT 10 KT.

#### 28/2210 PAZA SIGMET KILO 1 VALID 292215/300415:

PANC-ANCHORAGE FIR. ERUPTION AT 28/2140 UTC. VA CLOUD SFC/FL250. VA MOVEMENT NE AT 30 KT.

#### 28/2214 PAZA SIGMET KILO 2 VALID 282215/290415:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL250. VA MOVEMENT NE AT 30 KT.

#### 28/2215 VAAC: Anchorage (2009-34):

Redoubt volcano eruption at 28/2140 UTC. Observed VA cloud SFC/FL250 moving northeast 30 knots. Top of eruption cloud appeared white with bases darker.

#### 29/0010 PIREP HOM UA:

Over ANC-HOM, FL310, TP LJ35, some VA in grooves otherwise clear and dry. No ash, no sulfur smells.

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29/0023 PAZA SIGMET KILO 3 VALID 290025/290625: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL400. VA MOVEMENT N AT 30 KT. 29/0025 VAAC: Anchorage (2009-35): Redoubt volcano erupted at 28/2329. Observed VA cloud SFC/FL400 moving north 30 knots. VA reports of ash in trace amounts in vicinity of volcano. 29/0210 PAZA SIGMET KILO 4 VALID 290210/300610: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL350. VA MOVEMENT E 70 KT. 29/0215 VAAC: Anchorage (2009-36): Observed VA cloud SFC/FL350 moving east 70 knots. 29/0219 PAZA SIGMET JULIET 14 VALID 290300/290900: PANC-ANCHORAGE FIR. RESIDUAL VA FROM REDOUBT WITHIN SOUTH CENTRAL ALASKA CONTINUES IN THE UPPER YUKON AND TANANA VALLEYS. VA CLOUD SFC/FL150. VA MOVEMENT AT 20 KT. 29/0228 PAZA SIGMET KILO 5 VALID 290230/300610: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL350. VA MOVEMENT E AT 70 KT. 29/0230 VAAC: Anchorage (2009-37): Redoubt continues to have low VA emissions with mainly steam. VA spreading east SFC/FL350. 29/0300 VAAC: Anchorage (2009-38): Residual VA from previous eruptions reported by pireps. Observed VA cloud SFC/FL150 moving north 20 knots. VA diminishing. 29/0320 PAZA SIGMET KILO 6 VALID 290320/290810: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL350. VA MOVEMENT E 70 KTS. 29/0335 PIREP MCG UUA: Over HCA-MCG, FLUNKN, brown hazy layer bases estimated FL100 over Kuskokwim Valley, possible volcanic ash. 29/0345 PIREP ANC UA:

Over ANC 298070, No ash, no sulfur smell.

March	
29/0429	PIREP TKA UA: Over TKA 025025, FL100, TP PA31, cloud formation with tobacco coloring obscuring entire Susitna Valley. Clear to the north.
29/0614	PAZA SIGMET KILO 7 VALID 290615/291215: PANC-ANCHORAGE FIR. VA CONTINUES TO SPREAD NORTHEAST AT 60 KTS. VA CLOUD SFC/FL300.
29/0620	VAAC: Anchorage (2009-39): VA from 29/0323 UTC eruption. Observed VA cloud SFC/FL300 moving northeast 60 knots. VA not visible due to cloud cover.
29/0624	WVAK02 PAWU 290624WSVAK2 ANCHORAGE FIR. PAZA SIGMET JULIET 14 IS CNL WEF 290625 UTC.
29/0732	PAZA SIGMET KILO 8 VALID 290635/291235: PANC-ANCHORAGE FIR. VA CLOUD SFC/FL300. VA MOVEMENT NE AT 60 KTS.
29/0735	Alaska Volcano Observatory Update Bulletin: Another explosive eruption occurred at approximately 0714 UTC. NWS reports VA cloud tops above 20,000 feet above sea level.
29/1038	PAZA SIGMET KILO 9 VALID 291040/291640: PANC-ANCHORAGE FIR. VA FROM PREVIOUS ERUPTIONS BLOWING AROUND BY LOW LEVEL WINDS. VA CLOUD SFC/FL010. VA MOVEMENT STNR.
29/1040	VAAC: Anchorage (2009-40): Blowing VA from early eruptions. Observed VA cloud SFC/FL010 moving northwest. Increasing winds causing blowing VA.
29/1638	PAZA SIGMET KILO 9 IS CNL WEF 291640 UTC: Trace amounts of VA will continue to be blown around by the wind near the surface for at least the next twelve hours.

# 30/0345 <u>PIREP ILI UA</u>: Over ANC-BET, FL340, TP B734, between ILI and Redoubt, plume to FL200, then breaks up and spreads northeast. Thin haze layer. No odor.

Eruption has ended. Eruptive activity could resume at any time. Aviation

<u>VAAC: Anchorage (2009-41):</u>

Color Code remains red.

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30/0447 PIREP ANC UA: Over ANC 180020, FL135, TP DH8A, thin ash cloud approximately FL100 moving east. 30/0620 PIREP ENA UA: Over ENA 290040, FL220, TP SF34, Redoubt venting steam to the east, no ash observed. 30/0735 PAZA SIGMET LIMA 1 VALID 300735/301335: PANC-ANCHORAGE FIR. REDOUBT HAS ERUPTED. VA CLOUD SFC/FL200. VA MOVEMENT NW 45 KTS. 30/0755 PAZA SIGMET LIMA 2 VALID 300755/301355: PANC-ANCHORAGE FIR. ERUPTION AT 30/0710. VA CLOUD SFC/FL200. VA MOVEMENT NW AT 35 KT. VAAC: Anchorage (2009-42): 30/0755 Eruption of Redoubt volcano at 30/0710 UTC. Observed VA cloud SFC/FL200 moving northwest 35 knots. 30/1321 WVAK04 PAWU 30132 WSVAK4: ANCHORAGE FIR PAZA SIGMET LIMA 2 IS CNL WEF 301320 UTC. VA HAS DISSIPATED. 30/1325 VAAC: Anchorage (2009-43): VA from eruption at 30/0710 UTC has dissipated. No observed VA. 30/1715 PIREP SLQ UUA: Over SRV 360005, FL000, trace VA on ground. 30/1805 PAZA SIGEMT INDIA 1 VALID 301805/31005: PANC-ANCHORAGE FIR. VA BASES SFC/FL270. VA MOVEMENT NE. 30/1812 Alaska Volcano Observatory Update Bulletin: An ash emission occurred at 1744 UTC and produced an ash plume to about 27,000 feet above sea level. The event lasted for ten minutes and appears to have ended. 30/1827 PAZA SIGMET INDIA 2 VALID 301830/310030: PANC-ANCHORAGE FIR. ERUPTION AT 30/1744. VA SFC/FL270. VA MOVEMENT NE AT 10 KT.

30/1830 VAAC: Anchorage (2009-44):

Small VA emissions at 30/1744 UTC. Observed VA cloud SFC/FL270 moving northeast 10 knots. Emissions verified by web cam, radar, pirep, and seismicity.

30/2048 PIREP FAI UAA:

Over BIG-FAI, FL004, TP B206, picked up volcanic ash from south of BIG to FAI.

30/2206 PIREP ENA UA:

Over ENA 221020, FL200, TP SF34, plume drifting NW of ANC.

30/2207 PAZA SIGMET INDIA 3 VALID 302215/310415:

PANC-ANCHORAGE FIR. PILOT REPORTS INDICATE THAT REDOUBT VOLCANO CONTINUES TO EJECT MINOR LEVELS OF VA. VA CLOUD BASES FLSFC/TOPSFL230. VA MOVEMENT NE AT 10 KT.

30/2215 VAAC: Anchorage (2009-45):

Minor low level VA emissions continue. Observed VA cloud SFC/FL200 moving northeast 10 knots. Several pireps confirm VA remains across advisory area. VA is not noted on radar or GOES imagery as of 30/2215 UTC.

30/2325 PIREP HOM UA:

Over HOM, FL310, TP B734, ash tops below FL220 moving slightly NE over Cook Inlet.

31/0027 PIREP ANC UUA:

Over ENA, FL237, TP SF34, VA cloud NNE of Mt. Redoubt with ash tops FL180, except FL130-140 over Redoubt. Light gray ash is very dense over Mt. Redoubt and moderately dense elsewhere.

31/0150 PIREP ANC UA:

Over TAGER, FLUNKN, TP B734, could see ANC airport from 75nm north and reported no ash, no sulfur smell, just a thin haze layer approximately 50 nm west AWC.

31/0410 PAZA SIGMET INDIA 4 VALID 310415/311015:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL220. VA

MOVEMENT NE AT 10 KT.

31/0415 VAAC: Anchorage (2009-46):

Low level VA emissions continue. Observed VA cloud SFC/FL220 moving northeast 10 knots. Forecasted VA cloud areas based on continued low-level ash emissions.

#### 31/0455 PIREP ENA UA:

Over ENA 140010, FL120, TP SF34, haze extends NE from Mt. Redoubt and beyond ENA128008. Base of haze is FL120. Sulfur smell at 120. Plume from volcano varies in color from light to dark gray.

#### 31/1010 PAZA SIGMET INDIA 5 VALID 311015/311615:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL200. VA MOVEMENT E AT 40 KT.

#### 31/1607 PAZA SIGMET INDIA 6 VALID 311615/312215:

PANC-ANCHORAGE FIR. VA EMISSIONS CONTINUE. VA BASES FL2FC/TOPS FL200. AT CURRENT STATE OF LOW LEVEL EMISSION VA IS EXPECTED TO DISSIPATE WITHIN CURRENT SIGMET AREA. MOVEMENT E AT 30 KT.

#### 31/1620 <u>VAAC</u>: Anchorage (2009-47):

Low level VA emissions continue. Observed VA cloud SFC/FL200 moving east 30 knots. VA dissipates mainly over central Cook Inlet waters and northwestern Kenai Peninsula.

#### 31/2041 PIREP ANC UA:

Over ENA 222045, FL141, TP PC12/SK, over Redoubt volcano summit with dissipating ash blowing over Kenai Peninsula.

#### 31/2138 PAZA SIGMENT INDIA 7 VALID 312145/010345:

PANC-ANCHORAGE FIR. PILOT REPORTS INDICATE MINOR AMOUNTS OF VA MIXED WITH VOLCANIC GAS/HAZE HAS SPREAD ACROSS NORTHERN COOK INLET. VA CLOUD BASES FL080/TOPSFL150. VA MOVEMENT NE AT 20 KT.

#### 31/2145 VAAC: Anchorage (2009-48):

Minor emissions continue. Observed VA cloud FL080/FL150 moving northeast 20 knots. Continuous emissions of steam gases/haze and minor amounts of volcanic ash spreading across Northern Cook Inlet and Kenai Peninsula into Anchorage bowl. Pireps indicate layer of haze confined to mainly FL080/FL150. Area of concern expands eastward into Prince William Sound after 09z.

#### 31/2145 PIREP ANC UA:

Over ANC 233086, FL270, TP UNKN, plume of what looks like steam drifting northeast from Redoubt volcano.

#### 31/2320 PIREP ANC UA:

Over ENA 270012, FL120, TP SF34, moderate sulfur smell FL120-110.

#### 31/2337 PIREP ENA UUA:

Over ENA, FL070, TP C46, Ash cloud extends from Redoubt southeast over Cook Inlet SFC-090 and is approaching Kenai area.

# April, 2009 – Times in UTC

#### 01/0050 PAZA SIGMET INDIA 8 VALID 010055/010655:

PANC-ANCHORAGE FIR. REDOUBT ERUPTED TO APPROX FL250 AT 01/0015 UTC. VA CLOUD BASES FLSFC/TOPS FL250. VA MOVEMENT NE AT 30 KT.

#### 01/0055 <u>VAAC: Anchorage (2009-49):</u>

Minor, brief eruption to FL250. Observed VA cloud SFC/FL250 moving northeast 30 knots.

#### 01/0241 PIREP ANC UA:

Over ANC 246083, FL230, TP DH8A, light gray or white steam from Redoubt at FL140 and moving ENE.

#### 01/0322 PIREP ENA UA:

Over ANC 270070, FL320, TP B734, looks like steam with ash rising 2000-3000 ft above summit of Redoubt.

#### 01/0545 VAAC: Anchorage (2009-50):

Continuous low level VA emissions have resumed. Observed VA cloud SFC/FL150 moving east 15 knots. VA emissions above FL150 from the previous eruption at 01/0015 UTC have become diffuse aerosol haze or dissipated.

#### 01/0545 PAZA SIGMET INDIA 9 VALID 010545/011145:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA MOVEMENT E AT 15 KT.

#### 01/1010 PAZA SIGMET INDIA 10 VALID 011010/011610:

PANC-ANCHORAGE FIR. LOW LEVEL VA EMISSIONS CONTINUE. VA BASES FLSFC/TOPS FL200. VA MOVEMENT E AT 35 KT.

#### 01/1010 VAAC: Anchorage (2009-51):

Low level VA emissions continue. Observed VA cloud SFC/FL200 moving east 35 knots. VA difficult to see on satellite imagery. Some light ashfall reported at Valdez.

#### 01/1522 PIREP ANC UA:

Over ANC, FL370, TP B738, thin layer of haze at 100 ft about 1000 feet thick 20 miles east of Anchorage with very light sulfur odor lasting less than one minute. Clear and unrestricted above 110.

#### 01/1547 PIREP ENA UA:

Over ENA 215053, FL200, TP SW4, sulfur smell climbing from 080-110.

#### 01/1558 PAZA SIGMET INDIA 11 VALID 011605/012205:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL200. VA MOVEMENT E AT 30 KT.

#### 01/1615 VAAC: Anchorage (2009-52):

Low level emissions of VA and volcanic gases continue. Observed VA cloud SFC/FL200 moving east 30 knots. Small VA plume noted on 1420 UTC AVHRR imagery extending from volcano to east PAEN, then lost VA signal against ground clutter background noise of northern Kenai Peninsula. Pireps of PANC and vicinity of Turnagain Arm to Wrn Prince William Sound report sulfur smell.

#### 01/2200 PAZA SIGMET INDIA 12 VALID 012200/020400:

PANC-ANCHORAGE. PILOT REPORT INDICATES THAT LOW LEVEL VA EMISSIONS FROM REDOUBT WITHIN SOUTH CENTRAL ALASKA ARE CONTINUING. VA MOVEMENT E AT 40 KT.

#### 01/2205 VAAC: Anchorage (2009-53):

Low level emissions of VA and volcanic gases continue. Observed VA cloud: SFC/FL200 moving east 40 knots. Small VA plume noted on 2130 UTC imagery extending from volcano to central Kenai Peninsula.

#### 01/2355 PIREP ANC UA:

Over ANC, FL000, TP B734, steam cloud 030-040ft above crater drifting ESE 120 degrees and extending 15nm from crater.

#### 02/0307 PIREP ANC UA:

Over ANC 232085, FL350, TP B737, light steam from Redoubt moving northeast. No ash or odor.

#### 02/0340 PIREP PAQ UA:

Over ANC 090030, FL200, TP B734, sky hazy west of ANC, no ash, no sulfur smell.

#### 02/0345 PIREP MRI UA:

Over EDF 140019, FL130, TP B734, no ash, but sulfur smell from 130-110.

02/0400

PAZA SIGMET INDIA 13 VALID 020400/021000:
PANC-ANCHORAGE FIR. LOW LEVEL VA EMISSIONS
CONTINUING. VA CLOUD SFC/FL150. VA MOVEMENT E AT 40
KT.

PAZA SIGMET INDIA 14 VALID 020400/021000:
PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA

02/0430 VAAC: Anchorage (2009-54):
Low level emissions of VA and volcanic gases continue. Observed VA cloud: SFC/FL150 moving east 40 knots. Small VA plume noted on visible satellite photos over Kenai Peninsula.

02/1000 VAAC: Anchorage (2009-55):
Low level emissions continue. Observed VA cloud: SFC/FL150 moving east 40 knots. Light ashfall reported at Kenai AFSS.

02/1000 PAZA SIGMET INDIA 15 VALID 021000/021600:
PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA
MOVEMENT E AT 40 KT.

MOVEMENT E AT 40 KT.

02/1024 PIREP ANC UA:
Over PANC, FLUNKN, TPB739, entire RTE KSEA-PANC, no
ash/sulfur/smoke smell FL340-SFC, KELYE1 Arrival. No visible ash
cloud including over Fire Island to the WSW.

02/1555 PAZA SIGMET INDIA 16 VALID 021600/02200:
PANC-ANCHORAGE. LOW LEVEL VA EMISSIONS CONTINUE.
VA CLOUD BASES FLSFC/TOPSFL150. VA MOVEMENT NE AT 25
KT.

02/1600 VAAC: Anchorage (2009-56):
Low level ash emissions continue. Observed VA cloud: SFC/FL150 moving northeast 25 knots.

02/1825 <u>PIREP ENA UA</u>: Over ENA 215040, FL240, TP SF34, haze to FL240.

02/2155 PAZA SIGMET INDIA 17 VALID 022200/030400:
PANC-ANCHORAGE FIR. VA EMISSIONS CONTINUE. VA
CLOUD SFC/FL150. VA MOVEMENT NE AT 25 KT.

02/2200 VAAC: Anchorage (2009-57):
Low level VA emissions continue. Observed VA cloud: SFC/FL150 moving northeast 25 knots.

02/2242 PIREP ILI UA:

Over ANC 251110, FL050, TP B734, Steam plume visible over clouds around Mt. Redoubt. Very white in color, appears to be steam only. Top to FL150.

03/0359 PAZA SIGMET INDIA 18 VALID 030400/030500:

PANC- ANCHORAGE FIR. PAZA SIGMET INDIA 17 IS CNL WEF 030400 UTC.

03/0400 VAAC: Anchorage (2009-58):

Eruption has ended, but volcano is likely to erupt again. No VA cloud observed. Aviation color code remains red.

03/0509 PIREP SKW UA:

Over ANC 30060, FL200, TP B734, on climb out from ANC, some sulfur odor FL170-210, clear above FL210. No ash.

03/1000 <u>VAAC: Anchorage (2009-59)</u>:

Only steam is being emitted. No observed VA cloud. An explosive eruption possible at any time.

03/1555 PAZA SIGMET JULIET 1 VALID 041600/042200:

PANC-ANCHORAGE FIR. LOW LEVEL VA AND STEAM EMISSIONS OCCURRING. VA CLOUD SFC/FL180. VA MOVEMENT N AT 25 KT.

03/1557 CORRECTION: PAZA SIGMENT JULIET 1 VALID 031600/032200: PANC-ANCHORAGE FIR. AREA EFFECTED THROUGH 042200Z

WI N6155 W15259 – N6147 W15017 – N5953 W15240 – N6013 W 15447 – N6155 W15259.

03/1600 VAAC: Anchorage (2009-60):

Low level VA and steam emissions occurring. Observed VA cloud: SFC/FL180 moving north 25 knots.

03/1600 <u>PIREP YAK UA</u>:

Over YAK 225040, FL330, TP B739, no ash, no odor at FL330. Light haze.

03/1650 PIREP ANC UA:

Over PANC, FLUNKN, TP B738, DURGD no ash encountered. No sulfur smell. Smooth ride on Kelly Arrival.

03/2020 VAAC: Anchorage (2009-61):

Aviation Color Code Orange. Low level ash and steam emissions continue. Observed VA cloud: SFC/FL160 moving east 15 knots.

03/2020 PAZA SIGMET JULIET 2 VALID 032020/04220:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL160. VA MOVEMENT E AT 15 KT.

03/2304 Alaska Volcano Observatory Update Bulletin:

Eruption continues. The intensity of ash-production has decreased over the past few days while a lava dome is growing in the summit crater. Redoubt had seven more powerful ash explosions through Saturday evening, with the resulting plumes reaching between 25,000 to 50,000 feet above sea level. In total, AVO has observed 18 major explosive events since the start of the eruption. The last major explosive event occurred 0323 on March 29<sup>th</sup>. A diffuse cloud of volcanic gas, ash, and steam has been rising to a variable altitude over the volcano over the last few days, but has only reached 15,000 feet above sea level. Trace amounts of ash fall have been reported at Kenai and Valdez.

04/0159 PAZA SIGMET JULIET 3 VALID 040200/040800:

PANC-ANCHORAGE FIR. LOW VA AND STEAM EMISSIONS CONTINUE. VA CLOUD SFC/FL160. VA MOVEMENT E AT 10 KT.

04/0200 <u>VAAC</u>: Anchorage (2009-62):

Minor VA and steam emissions continue. Observed VA cloud: SFC/FL160 moving east 10 knots.

04/0748 PAZA SIGMET JULIET 4 VALID 040800/041400:

PANC-ANCHORAGE FIR. MINOR AMOUNTS OF VA, GASES, AND STEAM FROM REDOUBT. VA CLOUD SFC/FL160. VA MOVEMENT SE AT 10 KT.

04/0800 <u>VAAC: Anchorage (2009</u>-63):

Minor amounts of VA, volcanic gases, and steam. Observed VA cloud: SFC/FL160 moving southeast 10 knots. Plume appears to be mainly steam with minor amounts of VA.

04/1335 <u>PIREP ANC UA</u>:

Over ANC, FL167, TP E120, DURC southwest bound, no sulfur smell but haze along horizon.

04/1340 PAZA SIGMET JULIET 5 VALID 041345/041945:

PANC-ANCHORAGE FIR. MINOR AMOUNTS OF VA AND STEAM. VA CLOUD SFC/FL160. VA MOVEMENT SE AT 10 KT.

#### 04/1400 <u>VAAC: Anchorage (2009-64)</u>:

Minor amounts of VA and steam. Observed VA cloud: SFC/FL160 moving southeast 10 knots. Plume extending to the east of summit appears to be mainly steam with minor amounts of VA. Plume will begin to shift southeast of summit by 16z.

#### 04/1429 PAZA SIGMET JULIET 6 VALID 041430/042030:

PANC-ANCHORAGE FIR. EXPLOSIVE ERUPTION OF REDOUBT. VA CLOUD SFC/FL500. VA MOVEMENT SE AT 80 KT.

#### 04/1429 PIREP ENA UUA:

Over ENA 070010, FL240, TP B190, dark gray plume, tops estimated to FL350 moving southeast. Lightning visible.

#### 04/1430 VAAC: Anchorage (2009-65):

#### AVO color code Red.

Explosive eruption at 04/1400 UTC. Observed VA cloud: SFC/FL500 moving southeast 80 knots.

#### 04/1435 Alaska Volcano Observatory Update Bulletin:

Another significant explosive event occurred at Redoubt Volcano at approximately 1358 UTC. Cloud height is estimated at 50,000 feet above sea level based on National Weather Service radar. The cloud is drifting to the southeast of the volcano. AVO seismometers indicate a lahar has developed in the Drift River valley.

#### 04/1505 PIREP ADQ UUA:

Over ODK 080040, FL320, TP B744, big plume from Mt. Redoubt. Routing on B327 is clear for now.

#### 04/1558 PIREP SKW UUA:

Over PANC, FLUNKN, TP B734, ash and steam plume currently estimated to FL200. Much higher cirrus cloud further to the SSE appears to be from initial eruption. No ash or sulfur smell to position westbound to PABE.

#### 04/1608 PAZA SIGMET JULIET 7 VALID 041615/042215:

PANC-ANCHORAGE FIR. ERUPTION AT 04/1400. VA CLOUD SFC/FL400. VA MOVEMENT SE AT 100 KT.

#### 04/1620 PIREP DLG UUA:

Over DLG 6025N15314W, FL270, TP E120, Redoubt steam/ash top FL200. Also see an ash/steam cloud 010-030 above northwest face of mountain.

04/1615 <u>VAAC: Anchorage (2009-66)</u>:

Explosive eruption at 04/1400 UTC. Observed VA cloud: SFC/FL500 moving southeast 100 knots. Volcano still in eruption with VA plume in vicinity of Redoubt at FL200. Higher level plume expected to separate from low level plume after six hours. Refer to VAA statements FVxx20 KNES issued by the Washington VAAC at that time.

04/1823 PIREP YAK UA:

Over JOH, FL390, TP B737, VA plume observed east, height FL200-300 drifting S-SE. No sulfur smell.

04/1920 <u>PIREP ANC UA</u>:

Over ANC 218025, FLDURC, TP PC12, brownish grayish layer from FL140 to FL160 with sulfur smell from FL160 to FL170. Brownish layer extends down inlet from Anchorage. Clears out closer to Redoubt.

04/1945 PAZA SIGMET JULIET 8 VALID 041945/050145:

PANC-ANCHORAGE FIR. ERUPTION AT 04/1400 UTC. VA CLOUD SFC/FL300. VA MOVEMENT SE AT 50 KT.

04/1945 VAAC: Anchorage (2009-67):

Eruption continuing. Observed VA cloud: SFC/FL300 moving southeast 50 knots. Low level ash mostly in Cook Inlet area to Afognak Island. Leading edge of ash area is dissipating as it moves southeastward.

04/2000 PAZA SIGMET JULIET 9 VALID 042000/050200:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL400. VA MOVEMENT SE AT 50 KT.

04/2000 <u>VAAC: Anchorage (2009</u>-68):

Eruption at 04/1400 UTC continues. Observed VA cloud: SFC/FL400 moving southeast 50 knots. Low level ash in Cook Inlet area to Afognak Island. Leading edge of VA dissipating as it moves southeastward. New Pirep indicates VA tops at FL400.

04/2017 <u>PAZA SIGMET JULIET 2 VALID 032020/040220</u>:

PANC-ANCHORAGE FIR. MINOR VA AND STEAM EMISSIONS CONTINUE. VA CLOUD SFC/FL160. VA MOVEMENT E AT 15 KT.

04/2049 PIREP ANC UA:

Over PANC, FL000, TP B737, ash cloud visible from YESKA distant. Main body of VA moving south. No ash.

05/0129 VAAC: Washington (2009-013):

> VA from 04/1400 eruption. Observed VA cloud: SFC/FL300 moving East 22 knots. Due to low sun angle, an elongated, very faint area of possible VA and gases can be seen and continues to dissipate in imagery and will not be around in three hours.

05/0159 PAZA SIGMET JULIET 10 VALID 050200/050800:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL250. VA

MOVEMENT SE AT 45 KT.

VAAC: Anchorage (2009-69): 05/0200

> Redoubt continues to emit VA. Observed VA cloud: SFC/FL250 moving southeast 45 knots. VA dissipating as it moves southeastward.

05/0215 PIREP ENA UA:

> Over TPO-ENA 270020, FL090, TP PA18, steam and volcanic haze 090-110 from Redoubt to south of Kalgin Island north to Point Possession.

05/0349 PIREP ANC UA:

> Over ANC 177055, FL210, TP DH8A, thin dark cloud possible ash at FL210.

05/0748 PAZA SIGMET JULIET 11 VALID 040800/041400:

> PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA MOVEMENT SE AT 15 KT.

05/0752 PAZA SIGMET JULIET 12 VALID 050800/051400:

> PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA MOVEMENT SE AT 15 KT.

05/0800 VAAC: Anchorage (2009-70):

> Low level VA emissions continue. Observed VA cloud: SFC/FL150 moving southeast 15 knots. VA thinning within current area.

05/1218 PAZA SIGMET JULIET 13 VALID 051220/051820:

> PANC-ANCHORAGE FIR. EMISSIONS CONTINUING. VA CLOUD SFC/FL150. VA MOVEMENT SE AT 10 KT.

05/1230 VAAC: Anchorage (2009-73):

> Low level VA emissions continue. Observed VA cloud: SFC/FL150 moving southeast 10 knots. Ash signal noted on CH4-5 satellite imagery.

05/1755 PAZA SIGMET JULIET 14 VALID 051800/060000:

PANC-ANCHORAGE FIR. VA AND STEAM EMISSIONS

CONTINUE. VA CLOUD SFC/FL200. VA MOVEMENT NE AT 15

KT.

05/1800 VAAC: Anchorage (2009-74):

Low level VA and steam emissions. Observed VA cloud: SFC/FL200 moving northeast 15 knots.

05/1955 PIREP ANC UA:

Over ANC 232070, FL200, TP SF34, large steam plume to FL200, dissipating to the ENE of volcano.

05/2324 PIREP LVR UUA:

Over LVR-PJA, FLUNKN, Mt. Redoubt ash plume moving ENE up to FL070.

05/2357 PAZA SIGMET JULIET 15 VALID 060000/060600:

PANC-ANCHORAGE FIR. VA CONTINUES TO BE EMITTED. VA CLOUD SFC/FL200. VA MOVEMENT E AT 10 KT.

06/0559 PAZA SIGMET JULIET 16 VALID 060600/061200:

PANC-ANCHORAGE FIR. LOW-LEVEL EMISSIONS CONTINUE. VA CLOUD SFC/FL160. VA MOVEMENT NE AT 15 KT.

06/0600 VAAC: Anchorage (2009-76):

Low level VA emissions continue. Observed VA cloud: SFC/FL160 moving northeast 15 knots.

06/1146 PAZA SIGMET JULIET 17 VALID 061200/061800:

PANC-ANCHORAGE FIR. LOW LEVEL STEAM PLUME WITH POSSIBLE VA. VA CLOUD SFC/FL150. VA MOVEMENT E AT 10 KT.

06/1200 VAAC: Anchorage (2009-77):

Low level steam plumes with possible VA continue. Observed VA cloud: SFC/FL150 moving east 10 knots.

06/1231 PIREP ANC UA:

Over ANC 236068, FL200, TP SW4, steam with possible ash, tops 16,000 bases 11,000, appears to be moving ENE. Sulfur smell 060-120 over GASTO, but no ash.

06/1610 PIREP ANC UUA:

Over ANC, FL370, TP A320, tops of small ash cloud approximately FL200.

06/1800 PAZA SIGMET JULIET 18 VALID 061800/070000:

PANC-ANCHORAGE FIR. LOW LEVEL STEAM PLUME WITH POSSIBLE VA. VA CLOUD SFC/FL150. VA MOVEMENT NE AT 15 KT.

06/1800 <u>VAAC: Anchorage (2009-78)</u>:

Low level steam plumes with possible VA continue. Observed VA cloud: SFC/FL150 moving northeast 15 knots.

06/1826 PIREP ANC UA:

Over ANC 261035, FLDURC, TP GULF2, multiple layers of steam venting from Redoubt to FL250.

06/1833 PIREP ANC UA:

Over ANC 256084, FL400, TP GULF2, very dense cloud moving east, tops flat black at bottom, gets lighter towards the top. Tops getting higher but mostly steam.

06/2255 Alaska Volcano Observatory Update Bulletin:

AVO downgraded color code to Orange.

The eruption of Redoubt Volcano continues with varying intensity of ash and lava production from the summit crater. Additional significant explosive events with accompanying ash clouds, ash fall, and mudflows are possible and can occur with little or no warning. Present levels of activity are emitting only a very minor amount of ash that poses a hazard of limited aerial extent. AVO has lowered the aviation color code to orange.

06/2358 PAZA SIGMET JULIET 19 VALID 070000/070600:

PANC-ANCHORAGE FIR. LOW LEVEL EMISSIONS OF VA AND STEAM CONTINUE. VA CLOUD SFC/FL150. VA MOVEMENT N AT 10 KT.

07/0000 <u>VAAC: Anchorage (2009-79)</u>:

AVO color code Orange.

Low level plumes of VA and steam emissions continue. Observed VA cloud: SFC/FL150 moving north 10 knots.

07/0559 PAZA SIGMET JULIET 20 VALID 070600/071200:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL150. VA MOVEMENT N AT 10 KT.

07/0600 VAAC: Anchorage (2009-80):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL150 moving north 10 knots.

07/1152 PAZA SIGMET JULIET 21 VALID 071200/071800:

PANC-ANCHORAGE FIR. LOW LEVEL STEAM AND VA EMISSIONS CONTINUE. VA CLOUD SFC/FL150. VA MOVEMENT NE AT 5 KT.

07/1200 VAAC: Anchorage (2009-81):

> Low level VA and steam emissions continue. Observed VA cloud: SFC/FL150 moving northeast 5 knots. Clouds obscuring area.

07/1550 PIREP ANCA UA:

> Over ANC 272055, FL320, TP B734, volcano had steam up to FL180-FL200 moving east.

07/1755 PAZA SIGMET JULIET 22 VALID 071800/080000:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL200. VA

MOVEMENT SE AT 5 KT.

07/2355 PAZA SIGMET JULIET 23 VALID 080000/080600:

PANC-ANCHORAGE FIR. VA CLOUD SFC/FL200. VA

MOVEMENT SE AT 5 KT.

07/2357 PIREP ENA UA:

> Over ENA 270030, FL240, white steam tops to FL200, drifting east from volcano. May be small amount of ash mixed in with steam near summit.

No sulfur smell at FL240.

08/0000 VAAC: Anchorage (2009-83):

VA and steam emissions continue. Observed VA cloud: SFC/FL200

moving Southeast 5 knots.

08/0231 PIREP ANC UA:

> Over ENA 225025, FL230, TP SF34, white steam from Redoubt to FL200 drifting SE. Possible ash mixed with steam near summit. No sulfur smell.

08/0515 VAAC: Anchorage (2009-84):

VA and steam emissions continue. Observed VA cloud: SFC/FL200

moving Southeast 5 knots.

08/0644 PIREP ANC UA:

Over AMOTT, FLDURD, TP SF34, sulfur smell 190-075.

08/1115 VAAC: Anchorage (2009-85):

VA and steam emissions continue. Observed VA cloud: SFC/FL200

moving Northeast 5 knots.

08/1715 VAAC: Anchorage (2009-86):

> Continuing low level VA and steam emissions. Observed VA cloud: SFC/FL200 moving Northeast 10 knots. VA and steam can be seen

weakly on radar.

#### 08/1739 <u>PIREP IEM UA</u>:

Over IEM 050020, FL065, TP C206, over Esther Island, brown hazy layer 070-080.

#### 08/1830 PIREP SXQ UUA:

Over SXQ 180030, FL070, TP PA18, light VA falling.

#### 09/0515 VAAC: Anchorage (2009-88):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving Northeast 10 knots. Pireps continue to indicate sulfur smell. Pireps also indicate a white steam plume continues to drift northeastward from Redoubt with reports of possible VA near the summit.

#### 09/1115 VAAC: Anchorage (2009-89):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving Northeast 15 knots.

#### 09/1548 <u>PIREP ANC UA</u>:

Over ANC, FL140, TP B734, sulfur smell between FL130-140. No ash observed.

#### 09/1715 VAAC: Anchorage (2009-90):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL150 moving North 25 knots.

#### 09/1727 PIREP ENA UA:

Over ENA 236046, FL120, TP CA212, brown layer at 085.

#### 10/1115 VAAC: Anchorage (2009-92):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving Northwest 30 knots.

#### 10/1959 Alaska Volcano Observatory Update Bulletin:

Eruption of Redoubt volcano continues. Satellite and other evidence indicate a lava dome is growing in the summit crater. Additional explosive activity is possible with little warning. A continuous plume of volcanic gases, water vapor, and variable but small amounts of ash are being emitted from the vent. The resulting cloud is rising to a variable altitude over the volcano, but mostly less than 15,000 feet above sea level. Pilots have reported occasional sulfur smells downwind of the volcano.

#### 10/2315 <u>VAAC: Anchorage (2009-94)</u>:

Low level VA and steam emissions continue from the volcano within South Central Alaska. Observed VA cloud: SFC/FL150 moving Northwest 15 knots.

#### 11/1525 PIREP ANC UUA:

Over ENA 144036, FLDURC, TP B734, steam plume, maybe ash rising above Redoubt volcano straight up approximately FL180, then drifting NW.

#### 11/1715 VAAC: Anchorage (2009-96):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL220 moving Northwest 25 knots. VA and steam plume seen very well on satellite.

#### 11/1947 PIREP ANC UA:

Over ANC 211091, FL200, TP PC12, steam plume tops to FL220 moving WNW.

#### 11/2345 <u>VAAC: Anchorage (2009-97):</u>

Low level VA and ash emissions continue from volcano. Observed VA cloud: SFC/FL250 moving West 15 knots. Pireps indicate vigorous plume composed mostly of steam.

#### 12/0444 PIREP HOM UA:

Over PAEN, FL350, TP B734, estimated steam top FL200 heading east. No ash or sulfur smell.

#### 12/0522 PIREP ANC UA:

Over PANC, FLUNKN, TP B738, enroute FAI to ANC, visual on Redoubt, only steam appears to be directly above summit.

#### 12/1645 VAAC: Anchorage (2009-100):

AVO Color Code Orange.

VA and steam emissions continue. Observed VA cloud: SFC/FL220 moving North 5 knots.

#### 12/2100 PIREP ENA UA:

Over ENA 240045, FLUNKN, TP PA31, large white steam cloud heading NNE.

#### 13/0445 VAAC: Anchorage (2009-103):

Low level VA and steam emissions continue from volcano. Observed VA cloud: SFC/FL250 moving Northeast 15 knots.

#### 13/1641 PIREP ANC UA:

Over ANC076034, FLDURD, TPB737, sulfur smell at FL150.

#### 13/1653 PIREP ANC UUA:

Over ANC259034, FLDURD, TP DH8, possible ash cloud at FL140. NO sulfur smell.

#### 13/2245 <u>VAAC: Anchorage (2009-105)</u>:

VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving Northeast 25 knots.

#### 13/2300 PIREP SKW UA:

Over PAEN 330050, FLUNKN, TP B734, enroute BET to ANC, small steam plume directly over Mt. Redoubt approximately 1-2 thousand feet high. No sulfur smell.

#### 14/0445 VAAC: Anchorage (2009-106):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving Northeast 25 knots. Clouds and precipitation are preventing visual detection of VA and steam emission.

#### 14/1645 VAAC: Anchorage (2009-108):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving North 15 knots. VA and steam plume not visible due to cloud cover.

#### 14/2353 PIREP SXQ UA:

Over PAEN, FL300, TP B734, small amount of steam low level moving NW.

#### 15/0445 VAAC: Anchorage (2009-110):

Low level VA and steam emission continues. Observed VA cloud: SFC/FL200 moving West 20 knots. VA and steam plume not visible due to weather and clouds.

#### 16/1945 VAAC: Anchorage (2009-116):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL180 moving Southwest 15 knots. Steam and VA plume seen well on web cam.

#### 16/2330 PIREP ENA UUA:

Over ENA 236046, FL145, TP PA31, white steam drifting southwest. Bases at FL090, tops to FL145. Occasional puffs of steam up to FL160. Flew through dense steam and did not encounter any ash. Ash on ground within three miles downwind of volcano.

#### 17/0007 PIREP ENA UA:

Over ENA 236046, FL190, TP UNKN, after climb out from ILI, strong sulfur smell at FL140. Steam from Redoubt extends SW to north end of Lake Clark.

#### 17/0445 <u>VAAC: Anchorage (2009-118)</u>:

Steam and possible minor low level VA emissions continue. Observed VA cloud: SFC/FL160 moving Southwest 15 knots. Plume seen on satellite and web cam. Several earlier pireps confirmed plume mainly between FL090/FL160. Plume is white and appears to be mainly steam with minor VA. Earlier Pirep from 16/2330UTC reported VA on ground three miles southwest of volcano. Sulfur smell with neg VA was noted and can be expected to continue beyond outlined area.

#### 17/1943 PIREP ENA UUA:

Over ENA 260050, FL200, TP MD11, Mt. Redoubt partially obscured by clouds. Steam plume rising to FL200. Slight sulfur smell.

#### 17/2145 Alaska Volcano Observatory Update Bulletin:

Eruption of Redoubt Volcano continues. Over the past week, a lava dome has continued to grow in size within the summit crater. Dome growth during the past week has been accompanied by intermittent emissions of volcanic gases and minor amounts of ash. The aviation color code remains at orange. Seismicity has remained elevated above background reflecting ongoing process of dome growth and occasional rock falls. The nearly constant vapor and gas rising above the volcano has remained mostly below 15,000 feet above sea level. Satellite images show thermal anomalies at the summit as well as low-level plumes of sulfur dioxide clouds.

#### 17/2245 VAAC: Anchorage (2009-121):

#### AVO Color Code Orange.

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL200 moving South 5 knots. VA and steam plume seen on satellite and web cam.

#### 18/0445 VAAC: Anchorage (2009-122):

Steam and possible minor VA emissions continue. Observed VA cloud: SFC/FL160 moving North 10 knots. Low level steam plume noted on 18/0400 UTC GOES image. Minor amounts of VA still possible within plume though VA is expected to fall out within 15 miles of volcano.

#### 18/1045 <u>VAAC</u>: Anchorage (2009-123):

Continuing steam and minor VA emissions. Observed VA cloud: SFC/FL160 moving North 15 knots. Ashfall has been remaining within the immediate vicinity of Redoubt volcano.

#### 18/1712 PIREP ENA UA:

Over ENA 260048, FL120, TP DC6, Redoubt steaming to FL160 moving southwest.

#### 18/2245 <u>VAAC: Anchorage (2009-125)</u>:

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL160 moving West 20 knots.

#### 19/1045 VAAC: Anchorage (2009-127):

Low level VA and steam emissions continue. Observed VA cloud: SFC/FL160 moving West 20 knots. Although earlier reports indicated plume is mostly steam, minor amounts of ashfall are still possible close to the volcano.

#### 19/2200 VAAC: Anchorage (2009-129):

Only low level steam emissions continue. VA is no longer observed. Eruptive activity as stopped, but could resume at any time. This is the last advisory.

#### 20/1514 <u>PIREP ENA UA</u>:

Over ENA150023, FL300, TP B734, steam plume off Mt. Redoubt, tops approximately Fl180 drifting SW.

#### 21/0122 PIREP ANC UA:

Over ENA 200010, FL200, TP SF34, white steam from Redoubt volcano to 120 and drifting southeast.

#### 22/1610 PIREP ANC UA:

Over ANC 180015, FLDURC, TP B737, strong sulfur smell. Darker streaky clouds visible over Mt. Redoubt.

#### 23/0308 PIREP ANC UA:

Over ANC 336015, FLDURC, TP B738, sulfur smell, FL080 to FL120.

#### 24/0002 <u>Alaska Volcano Observatory Update Bulletin:</u>

The 2009 eruption of Redoubt volcano continues. During the past week, growth of the lava dome within the summit crater has slowed based on observations of little change in dome shape. Emissions of volcanic gases and minor amounts of ash continues. A probable rockfall from the lava dome generated a very localized dusting of ash early today. The aviation color code remains at orange. Seismicity has remained elevated above background reflecting the ongoing process of dome growth and occasional rock falls. The nearly constant vapor and gas cloud rising above the volcano has remained mostly below 15,000 feet above sea level. Satellite images show thermal anomalies at the summit as well as low-level plumes of sulfur dioxide.

#### 24/1035 <u>VAAC: Anchorage (2009-130)</u>:

# AVO Color Code remains Orange.

Vigorous steam emissions occurring. No VA cloud observed. Per coordination with AVO, intermittent but vigorous steam emissions occurring to approximately FL250. Despite easily seen steam plumes on infrared satellite imagery, radar has not been able to detect any VA emissions. Satellite analysis also indicates these steam plumes contain little or no VA. This is the last advisory unless new eruptive activity occurs.

# May 2009 – Times in UTC

#### 08/0017 <u>Alaska Volcano Observatory Update Bulletin:</u>

Growth of the lava dome continued this past week and is now roughly equivalent in size to the largest dome that was emplaced during the 1989-90 eruption.

# June 2009 – Times in UTC

#### 30/1820 Alaska Volcano Observatory Update Bulletin:

#### AVO downgraded color code to Yellow.

Seismic, satellite, gas, and deformation observations over the past few weeks indicate that growth of the lava dome at Redoubt has significantly slowed, if not stopped, and therefore it is possible that the current eruptive activity has ended. However, it is unknown if this represents the end of the 2009 eruption of Redoubt or if the activity has only paused temporarily and might resume in the next months. The large lava dome located at the north side of the summit crater, and extending down the Drift Glacier Gorge, still presents a hazard. It is possible that this large mass of fresh lava is unstable and could fail with little or no warning, leading to significant ash production and possible lahars in the Drift River valley. AVO will continue to monitor Redoubt's activity closely, but begin to transition off 24/7 staffing.

# July 2009 – Times in UTC

10/2013 <u>Alaska Volcano Observatory Update Bulletin</u>: AVO suspends 24/7 operation.