WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Model VAG and Model SVA

Addressing issues with the existing model charts used in Appendix 1 to ICAO Annex 3

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World Meteorological Organization
Organisation météorologique mondiale

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Content

- The background
- The problems
- The principles
- The options
- Summary of options
- The proposal
- The next steps

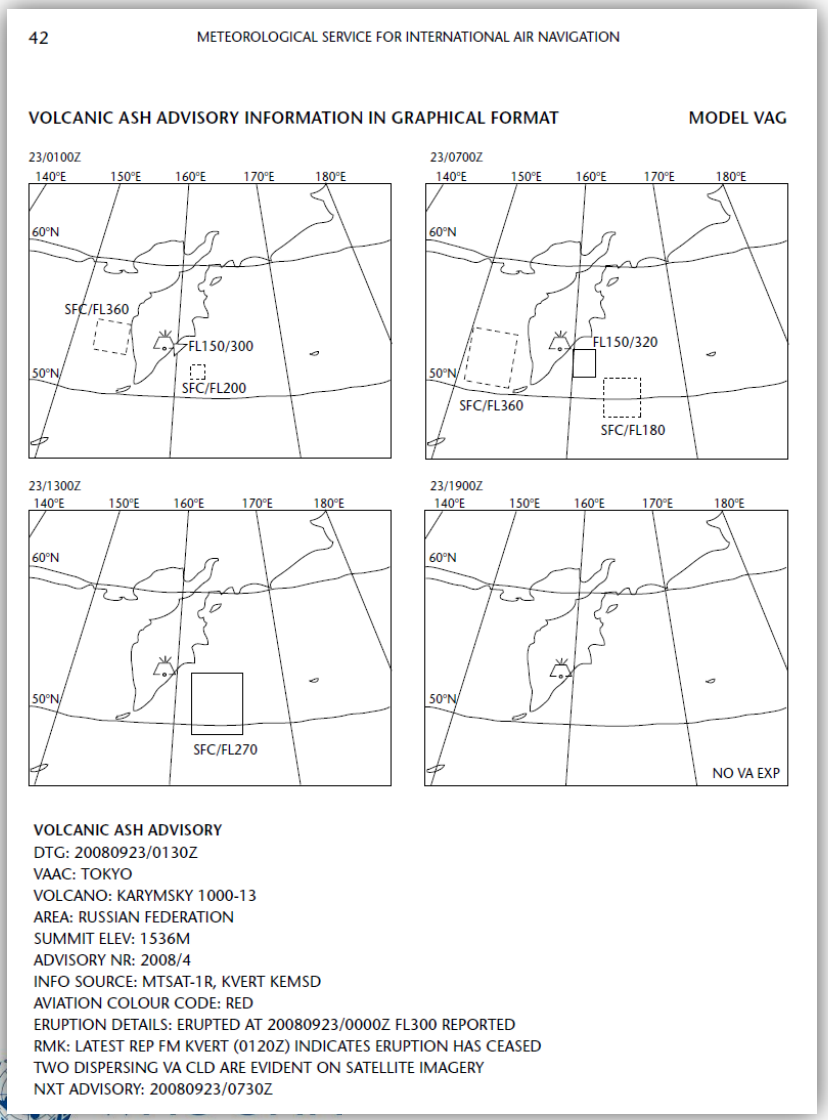
The background

- ICAO IAVWOPSG/8 (2014)
  - Conclusion 8/16
- ICAO METP WG-MOG/2 (2016)
  - Action agreed 2/7 and 2/8

- Expectation:
  - Discuss at VAAC BP/5 (June 2017), agree preference
  - Report outcomes to WG-MOG/5 (June 2017)
  - Report to METP/3 (Q3 2018) with proposal for inclusion as part of draft Amendment 79 to Annex 3 (applicability November 2020)

The problems

Current depiction – Model VAG



42 METEOROLOGICAL SERVICE FOR INTERNATIONAL AIR NAVIGATION

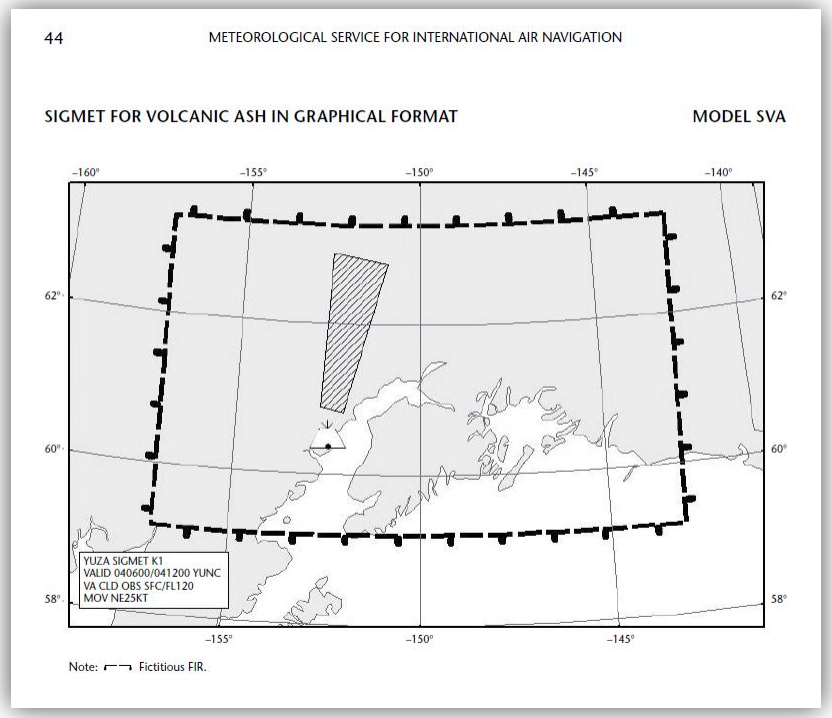
VOLCANIC ASH ADVISORY INFORMATION IN GRAPHICAL FORMAT MODEL VAG

VOLCANIC ASH ADVISORY
DTG: 20080923/0130Z
VAAC: TOKYO
VOLCANO: KARYMSKY 1000-13
AREA: RUSSIAN FEDERATION
SUMMIT ELEV: 1536M
ADVISORY NR: 2008/4
INFO SOURCE: MTSAT-1R, KVERT KEMSD
AVIATION COLOUR CODE: RED
ERUPTION DETAILS: ERUPTED AT 20080923/0000Z FL300 REPORTED
RMK: LATEST REP FM KVERT (0120Z) INDICATES ERUPTION HAS CEASED
TWO DISPERSING VA CLD ARE EVIDENT ON SATELLITE IMAGERY
NXT ADVISORY: 20080923/0730Z

- Problems:
  - Polygon does not conform to Table A2-1, Note 2
    - *"A straight line between two points drawn on a map in the Mercator projection or a straight line between two points which crosses lines of longitude at a constant angle."*
  - Only one map projection depicted (polar stereographic) when others may conceivably be used, including Mercator

Annex 3 (19th Edition, 2016), Appendix 1

Current depiction – Model SVA



- **Plus:**
  - No direction and speed of movement depiction (Table A6-1A) apart from in text box
  - Or, no indication of the forecast position at the end of the SIGMET period of validity (Table A6-1A)

- Problems:
  - Polygon does not conform to Table A2-1, Note 2
    - *"A straight line between two points drawn on a map in the Mercator projection or a straight line between two points which crosses lines of longitude at a constant angle."*
  - Only one map projection depicted (polar stereographic) when others may conceivably be used, including Mercator

Annex 3 (19th Edition, 2016), Appendix 1

The principles

Principle considerations

- The model charts must be consistent with the Annex 3 provisions which they support
- The model charts used in Annex 3 are simply examples/best practices
  - They are not the only way in which a VA cloud could be depicted on a chart
- Monochrome preferred
- Reasonable restraint in the range of model charts is required
  - Lots and lots of scenarios will not be accepted
- ICAO Doc 8896 (or other?) could be used
  - To provide amplification on how Model VAG and Model SVA in Annex 3 could be alternatively applied in the real world
  - Or future PANS-MET?

The options

Model VAG

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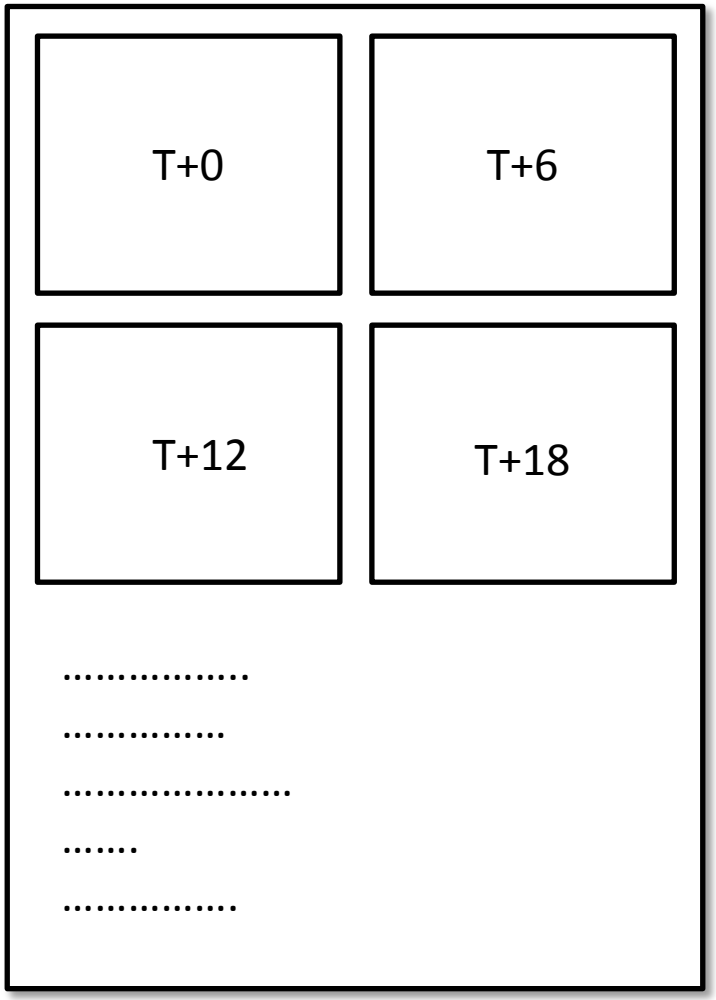
Model VAG v2.0

- Mercator
- Portrait
- “4-up” plus text
- Correctly plotted polygons, including multi-layers
- Monochrome
- Fictitious location



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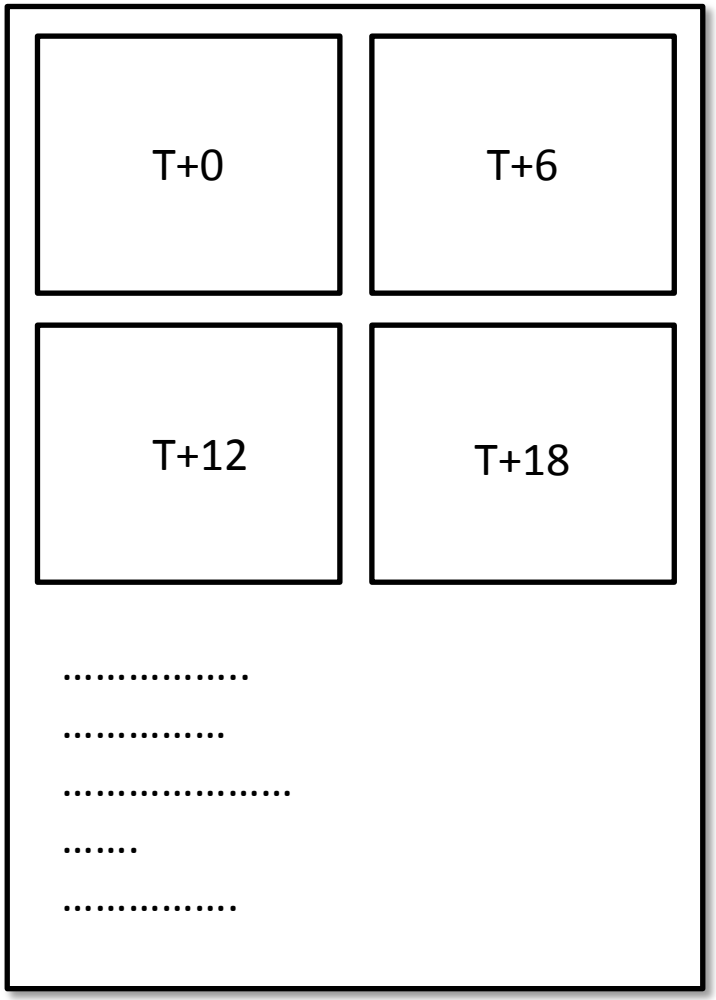
Preference of: Buenos Aires, Darwin, Montreal, Tokyo, Toulouse

B

Model VAG v2.0

- Polar stereographic
- Portrait
- “4-up” plus text
- Correctly plotted polygons, including multi-layers
- Monochrome
- Fictitious location



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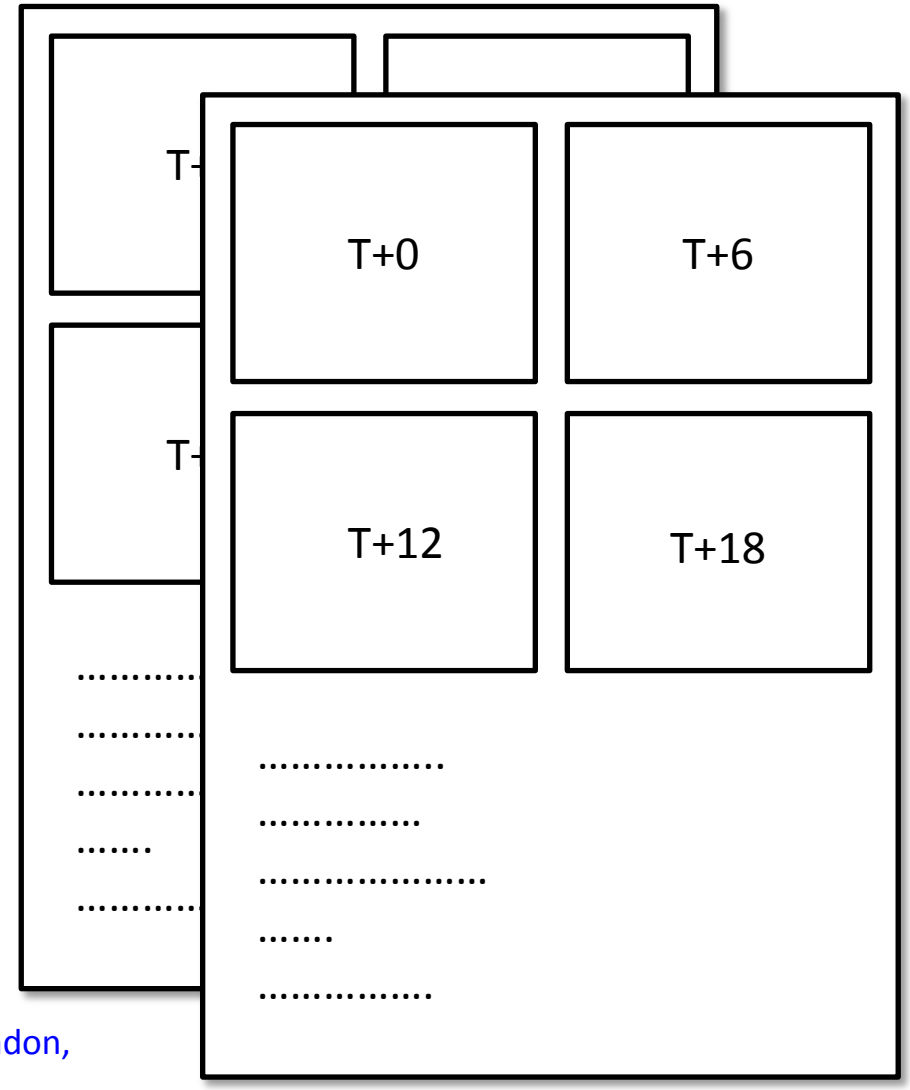
Preference of: None

Model VAG v2.0

- Mercator **and** polar stereographic
- Portrait
- “4-up” plus text
- Correctly plotted polygons, including multi-layers
- Monochrome
- Fictitious location



Preference of: Anchorage, London, Washington, Wellington

The options

Model SVA

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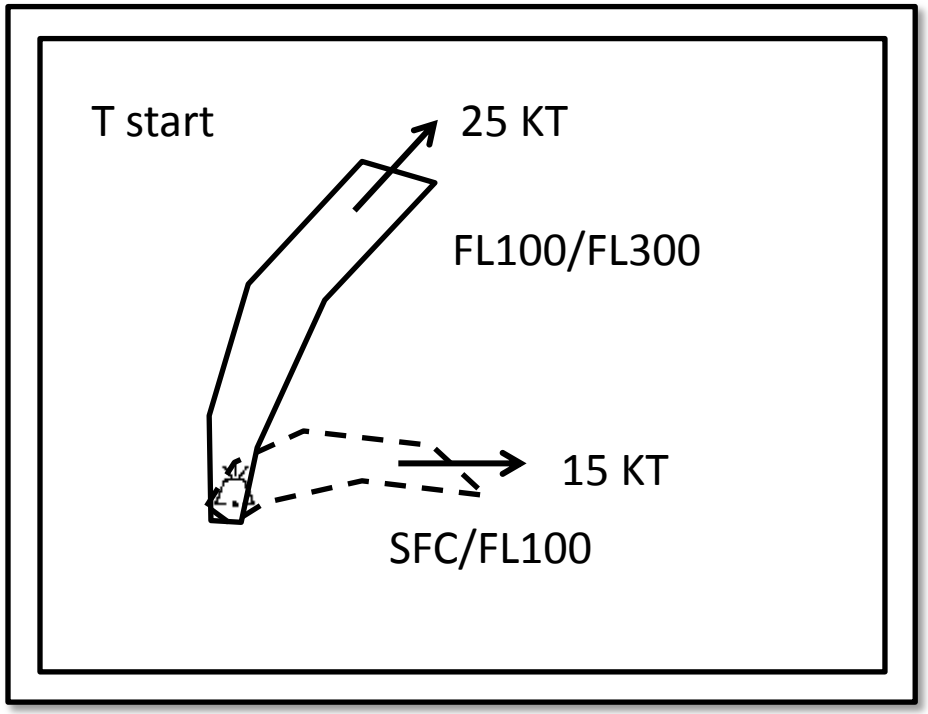
1a

Model SVA v2.0

- Mercator
- Landscape
- “1-up”
- Correctly plotted polygons
- Direction and speed of movement of OBS (or FCST) cloud
- No FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



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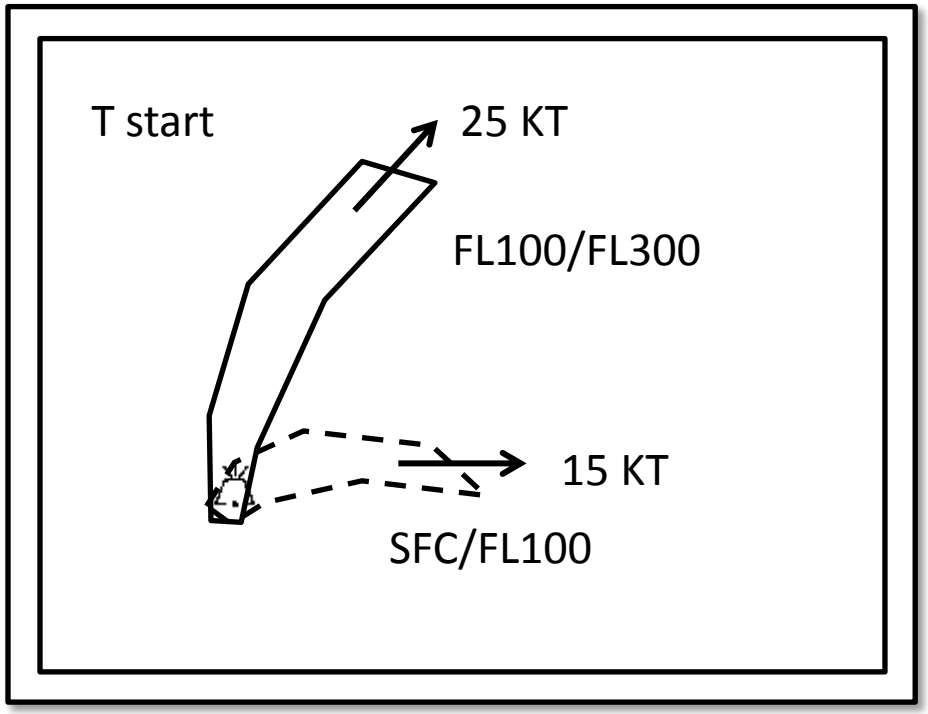
1b

Model SVA v2.0

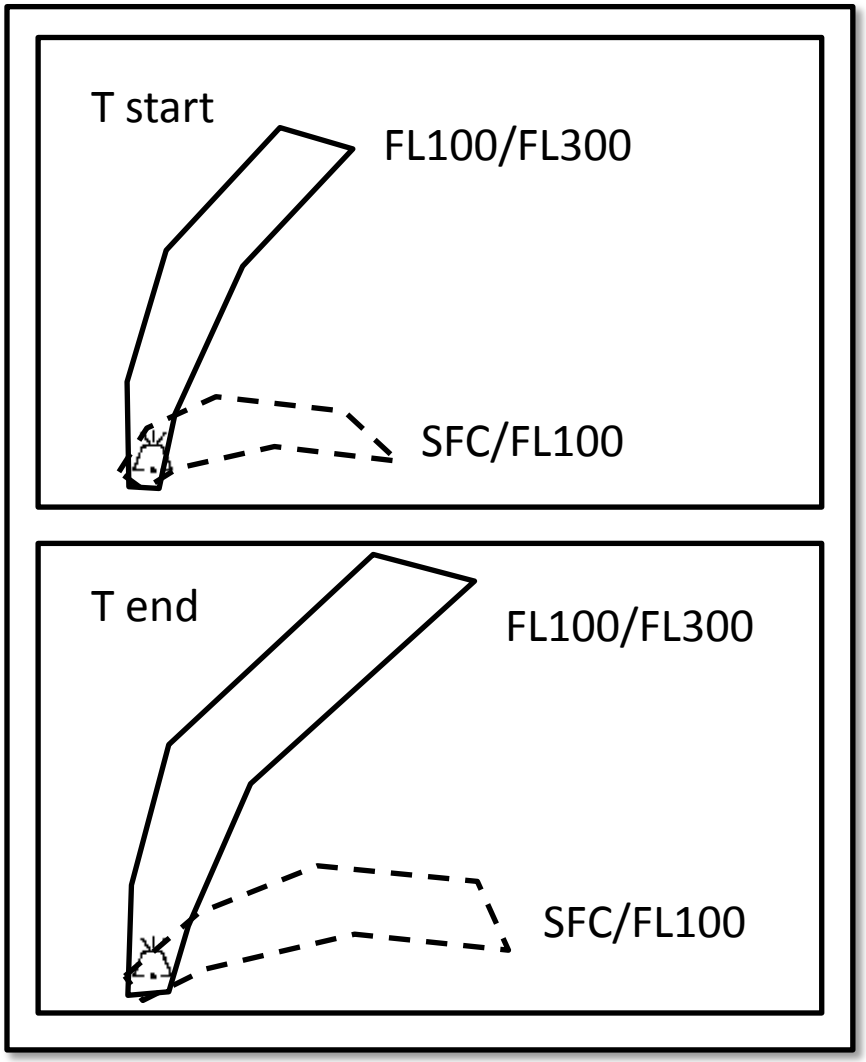
- Polar stereographic
- Landscape
- “1-up”
- Correctly plotted polygons, including multi-layers
- Direction and speed of movement of OBS (or FCST) cloud
- No FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



2a

Model SVA v2.0

- Mercator
- Portrait
- “2-up”
- Correctly plotted polygons
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



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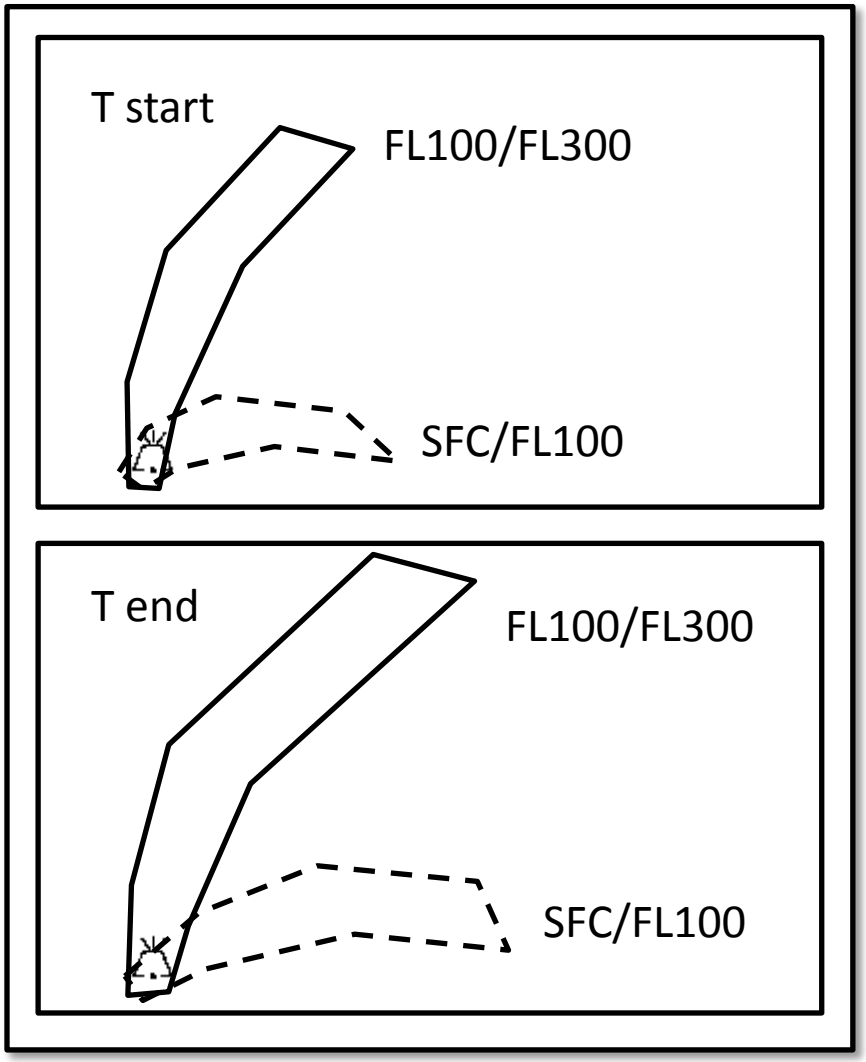
2b

Model SVA v2.0

- Polar stereographic
- Portrait
- “2-up”
- Correctly plotted polygons, including multi-layers
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



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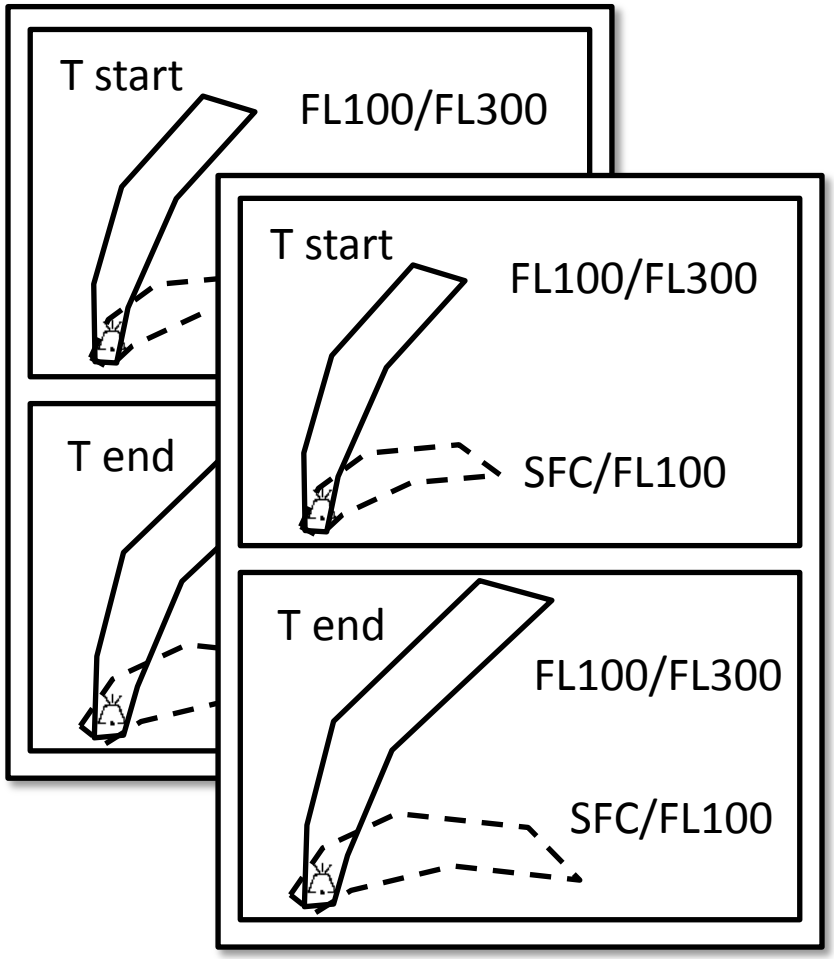
2c

Model SVA v2.0

- Mercator **and** polar stereographic
- Portrait
- “2-up”
- Correctly plotted polygons, including multi-layers
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



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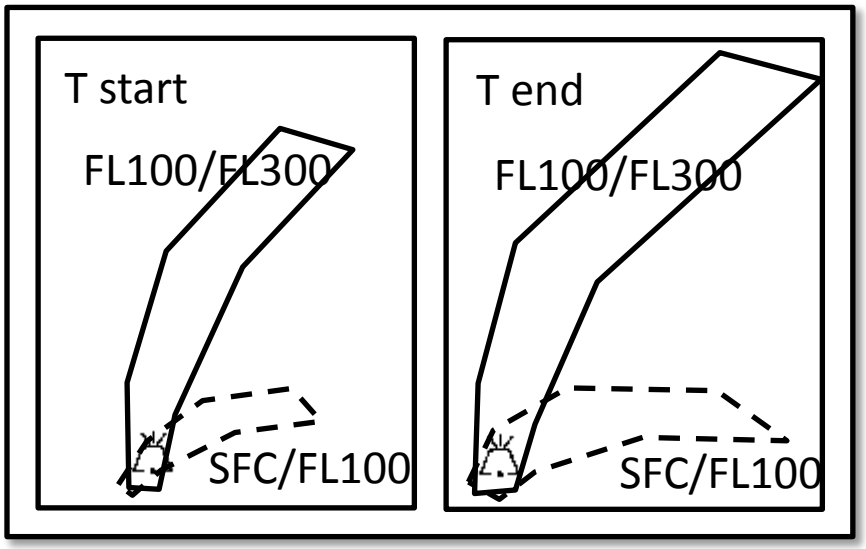
3a

Model SVA v2.0

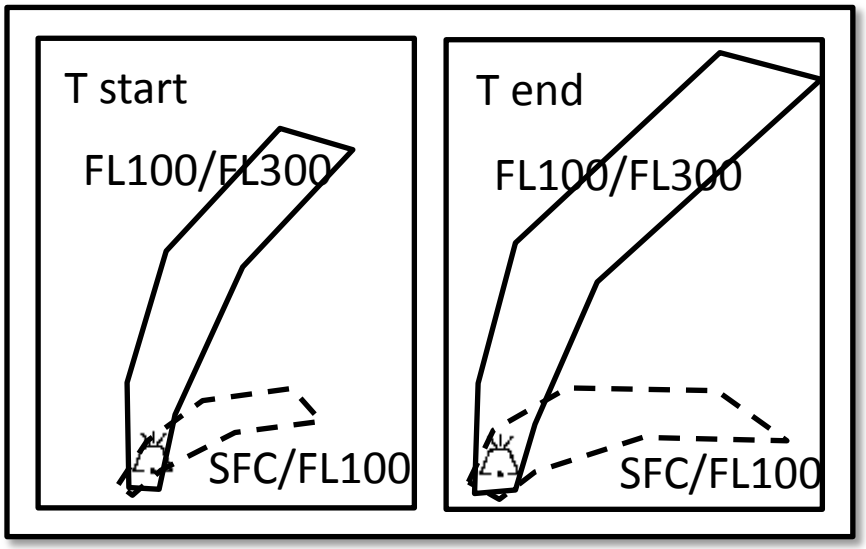
- Mercator
- Landscape
- “2-up”
- Correctly plotted polygons, including multi-layers
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



3b

Model SVA v2.0

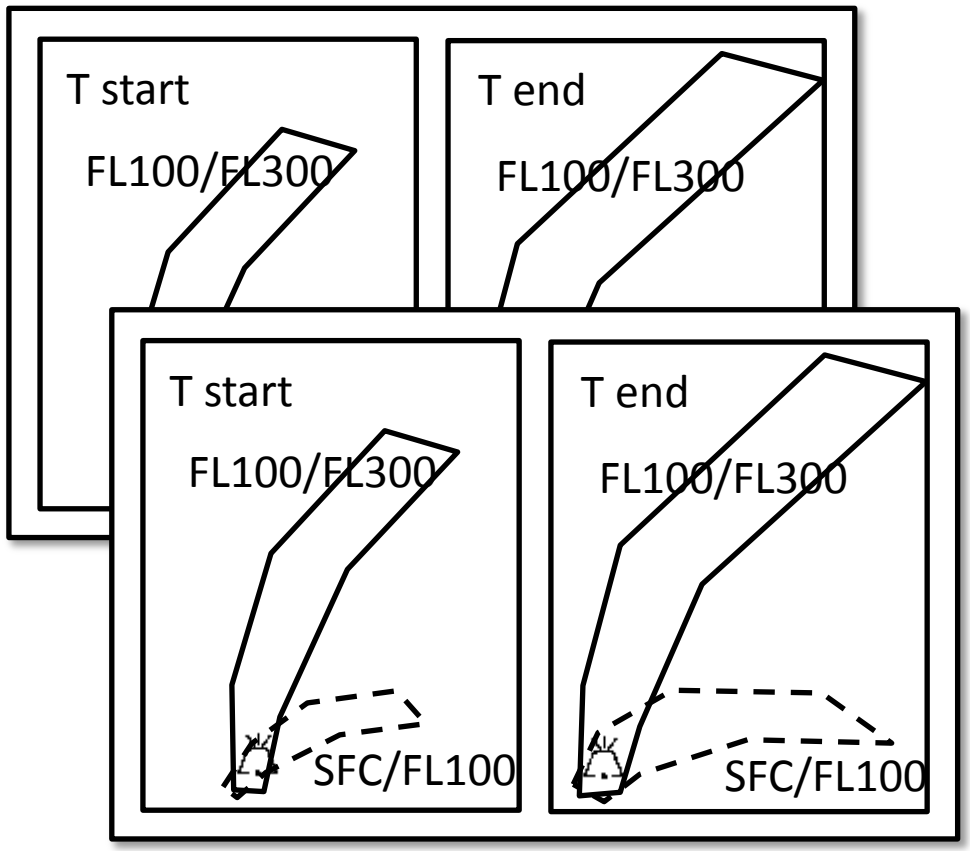
- Polar stereographic
- Landscape
- “2-up”
- Correctly plotted polygons, including multi-layers
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



3c

Model SVA v2.0

- Mercator **and** polar stereographic
- Landscape
- "2-up"
- Correctly plotted polygons, including multi-layers
- OBS (or FCST) position **and** FCST position at end of SIGMET validity period
- Monochrome
- Fictitious location



Summary of options

Options – Model VAG

	A	B	C
Mercator	•		
Polar stereographic		•	
Mercator and polar stereographic			•
Portrait	•	•	•
Landscape			
4-up plus text	•	•	•
Correctly plotted polygons	•	•	•
Multi-layer option	•	•	•
Monochrome	•	•	•
Fictitious location	•	•	•

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Options – Model SVA

	1a	1b	2a	2b	2c	3a	3b	3c
Mercator	•		•			•		
Polar stereographic		•		•			•	
Mercator and polar stereographic					•			•
Portrait			•	•	•			
Landscape	•	•				•	•	•
Direction and speed of movement	•	•						
FCST position at end of SIGMET validity			•	•	•	•	•	•
1-up	•	•						
2-up			•	•	•	•	•	•
Correctly plotted polygons	•	•	•	•	•	•	•	•
Multi-layer option	•	•	•	•	•	•	•	•
Monochrome	•	•	•	•	•	•	•	•
Fictitious location	•	•	•	•	•	•	•	•

The proposal

(keeping in mind the principles)

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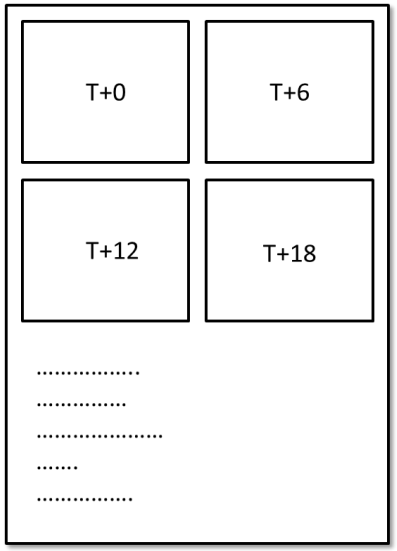
MODEL VAG

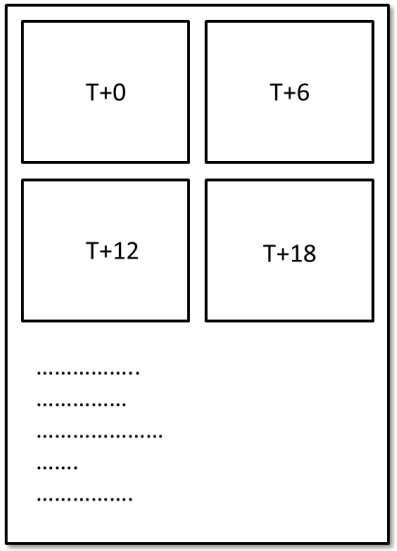
Example 1

- Mercator projection
- Portrait orientation
- “4-up” graphic plus supporting text elements
- Correctly plotted polygons
- Multi-layers
- Monochrome
- Fictitious location



Example 2

- Polar stereographic projection
- Portrait orientation
- “4-up” graphic plus supporting text elements
- Correctly plotted polygons
- Multi-layers
- Monochrome
- Fictitious location



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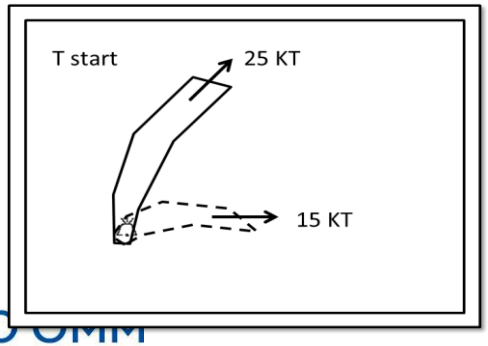
MODEL SVA

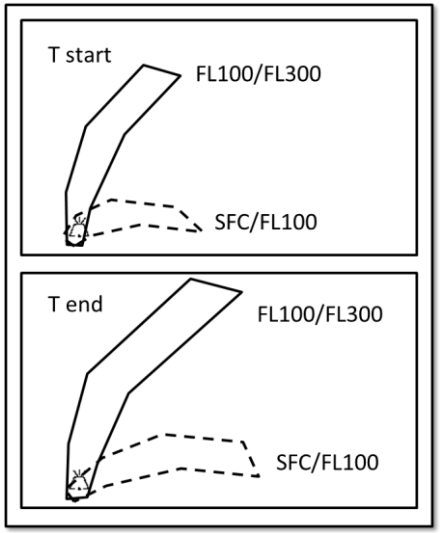
Example 1

- Mercator projection
- Landscape orientation
- “1-up” graphic
- Correctly plotted polygons
- Multi-layers
- OBS (or FCST) position of VA cloud(s) at start of SIGMET validity period with corresponding direction and speed of movement indicators
- Monochrome
- Fictitious location



Example 2

- Polar stereographic projection
- Portrait orientation
- “2-up” graphic
- Correctly plotted polygons
- Multi-layers
- OBS (or FCST) position at start of SIGMET validity period and FCST position at the end of the SIGMET validity period
- Monochrome
- Fictitious location



The next steps

Next steps

- Communicate consensus position to WG-MOG/5
- Formulate WG-MOG/5 action to:
  - Prepare new MODEL VAG and MODEL SVA in coordination with a (tbd) VAAC
  - Develop proposed amendment to Appendix 1 of Annex 3 for consideration at METP/3 (2018)
- Seek introduction as part of Amendment 79 to Annex 3
  - Applicability in November 2020

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Thank you
Merci

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