MSAS performance demonstration Example

Evaluation point : New-chitose airport (APV-I)

Analysis period : 27/2/2022 ~ 26/3/2022 (4W)

11-12/5/2022

Network Performance Assessment Center (NPAC)

Japan Civil Aviation Bureau

Background : LPV Implementation plan

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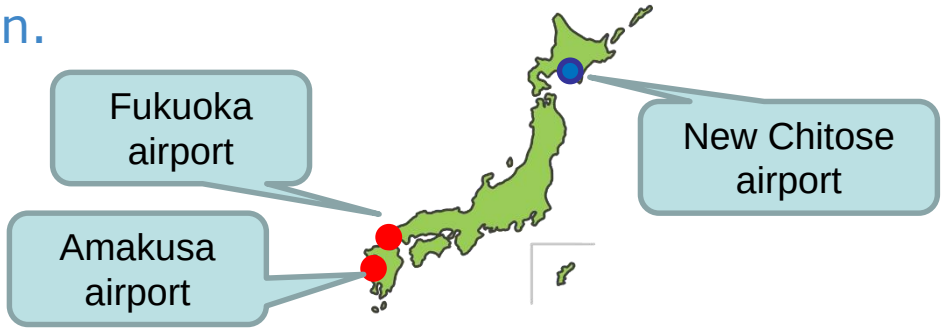
JCAB has the MSAS LPV implementation plan (below) through LPV trial operation.
MSAS LPV trial operation has started from Amakusa Airport, southern part of Japan. NPAC presented MSAS performance analysis at Fukuoka airport in south part of Japan at the last meeting.
And JCAB is going to expand northern part of Japan in this year.
This paper will present MSAS performance analysis conducted by New Chitose airport, northern part of Japan.



＜MSAS LPV trial operation＞ 2021～
・Using MSAS v2 (one GEO), LPV-250 approach will be introduced step by step from 2021 for the purpose of LPV method evaluation on Airline.

＜MSAS LPV full-scale operation＞ After 2023～
・Using MSAS v3 (three GEOs), MSAS LPV-200 is scheduled to commence to operate at many airports where IFR approach is designed.
・After operation of MSAS LPV-200, sequentially RNP to LPV will be designed.

MSAS Performance Analysis

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Currently MSAS is operated by MSAS V2 and JCAB is developing MSAS V3, to cope with LPV performance. This analysis is conducted by V2 and the availability will be lower than expected one.

1. SIS performance analysis (accuracy, integrity, availability, continuity)

SIS Performance Evaluation at Monitoring Sites over the Reporting Period

(New-chitose airport APV, Horizontal)

date	Accuracy(95%)	Integrity	Continuity	Availability
2/27 - 3/5	1.01 m	100.00 %	98.90 %	99.15 %
3/6 - 3/12	1.10 m	100.00 %	97.16 %	97.62 %
3/13 - 3/19	1.07 m	100.00 %	97.54 %	98.00 %
3/20 - 3/26	1.06 m	100.00 %	97.95 %	98.31 %

(New-chitose airport APV, Vertical)

date	Accuracy(95%)	Integrity	Continuity	Availability
2/27 - 3/5	1.30 m	100.00 %	97.46 %	97.45 %
3/6 - 3/12	1.64 m	100.00 %	89.67 %	89.86 %
3/13 - 3/19	1.48 m	100.00 %	92.44 %	92.53 %
3/20 - 3/26	1.33 m	100.00 %	95.87 %	95.94 %

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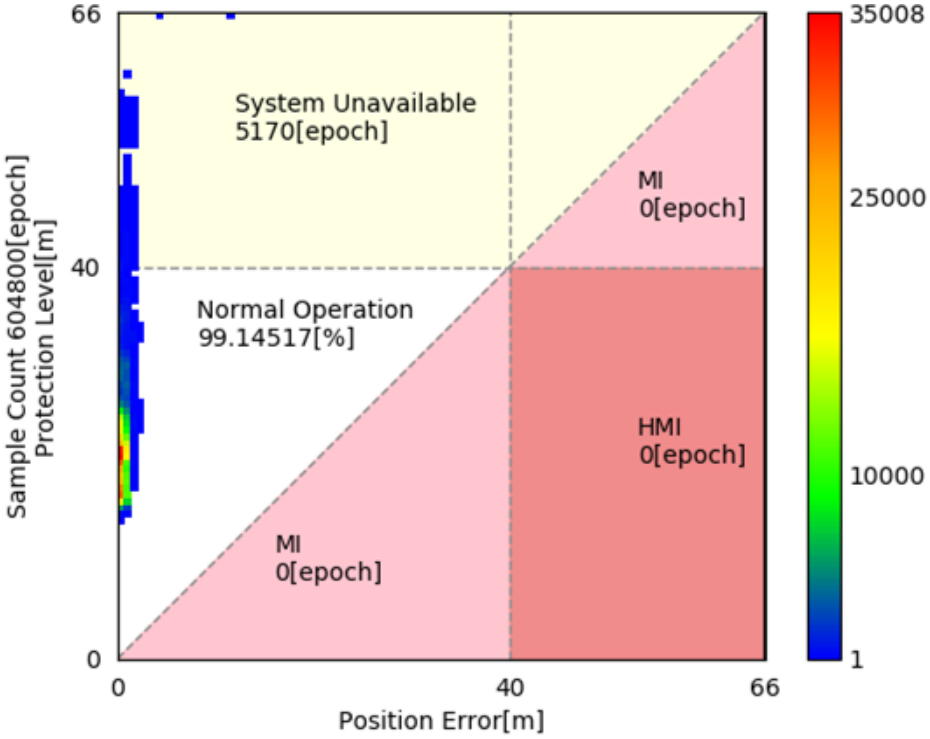
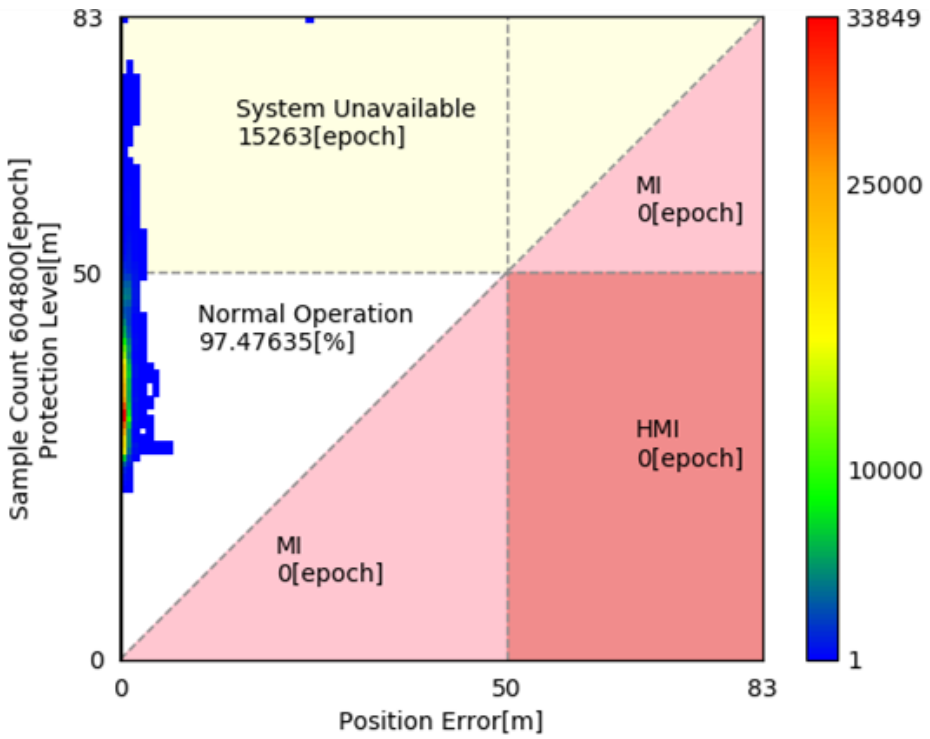
2. Stanford Chart 27/2/2022 ~ 5/3/2022

⊖ Feb. 27 ~ Mar. 5



Horizontal



Vertical

MSAS Performance Analysis

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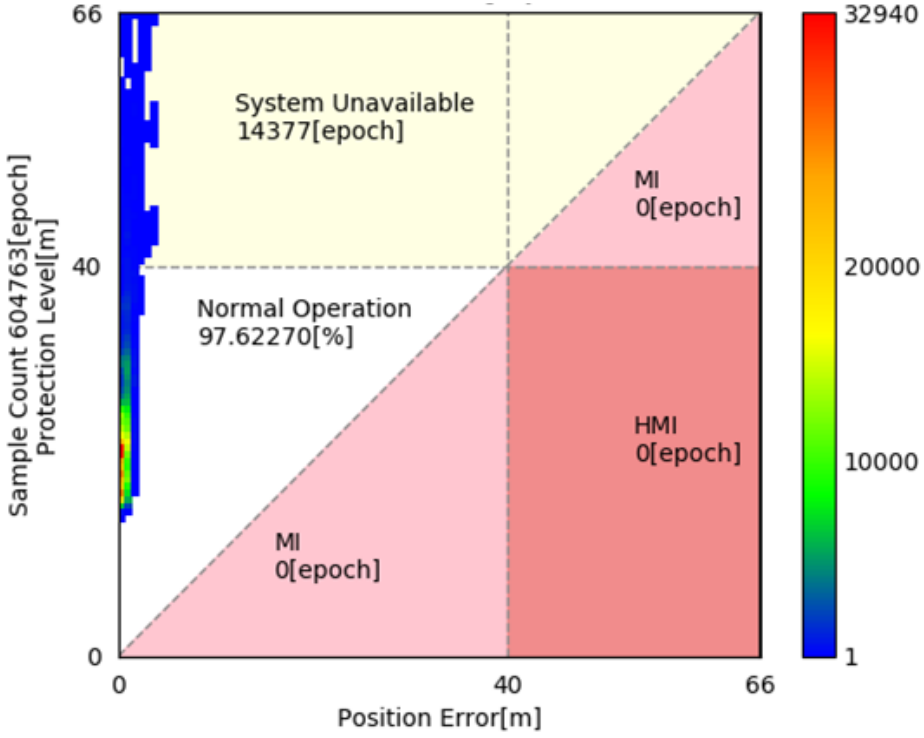
- Mar. 6 ～ Mar. 12



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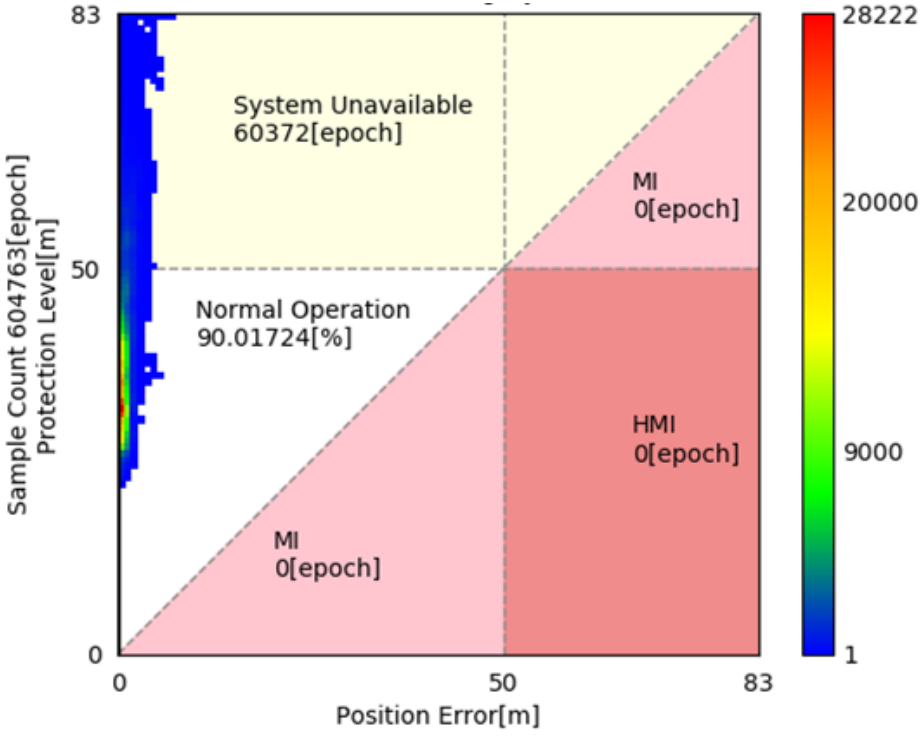

Vertical

MSAS Performance Analysis

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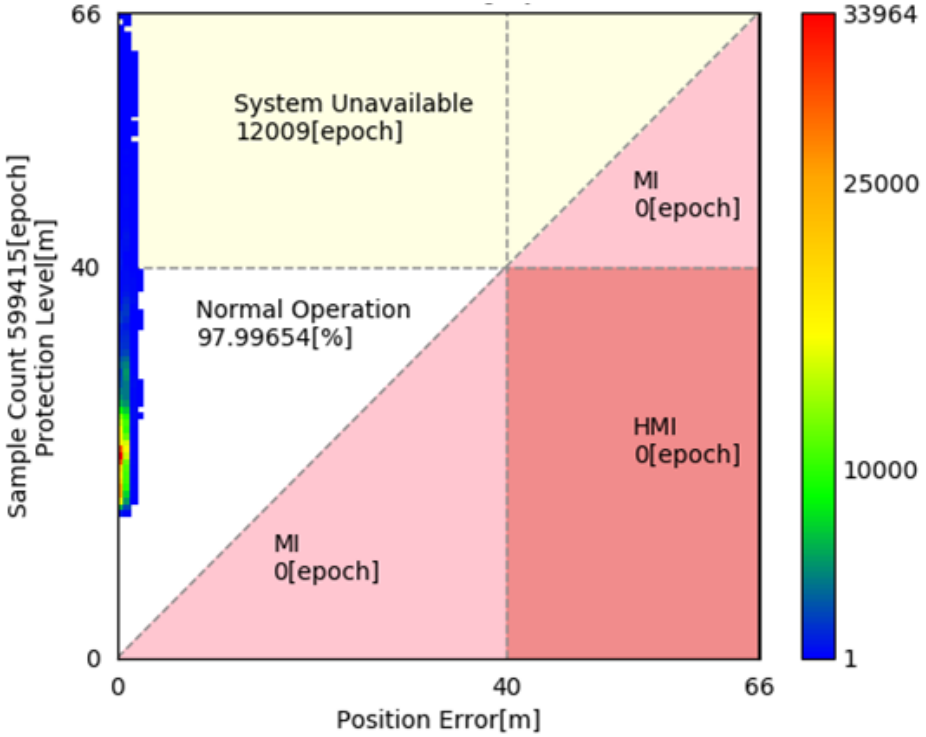
⊛ Mar. 13 ～ Mar. 19



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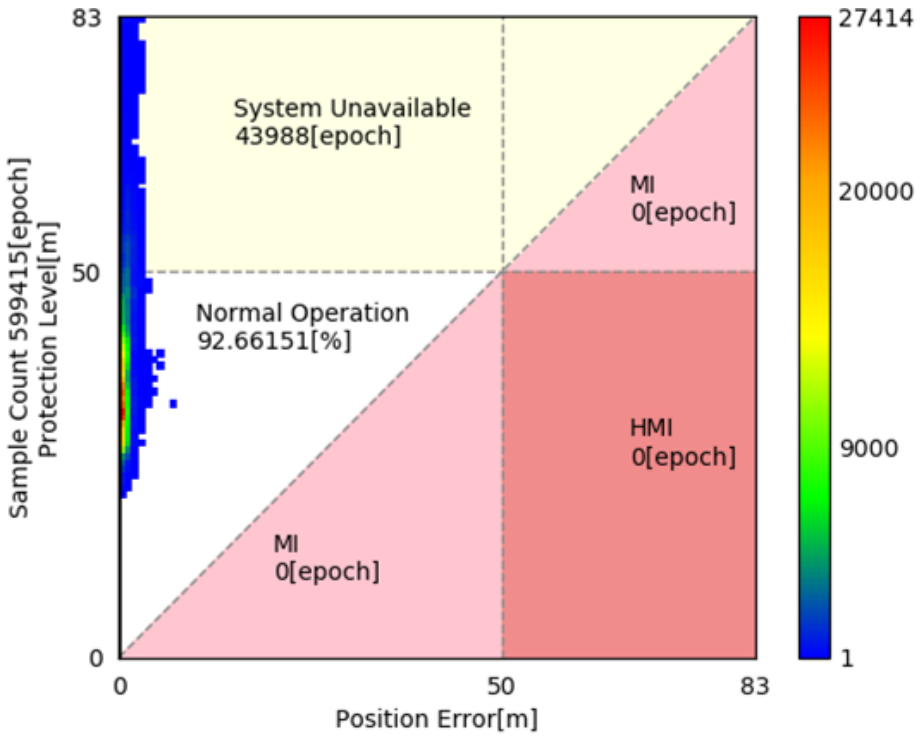

Vertical

MSAS Performance Analysis

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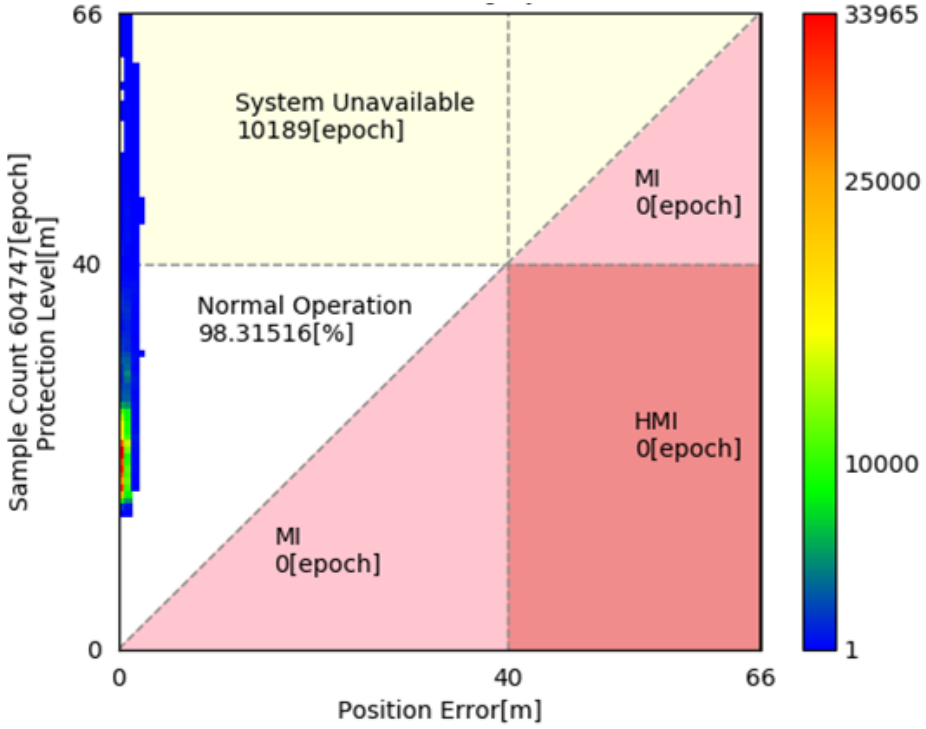
④ Mar. 20 ～ Mar. 26



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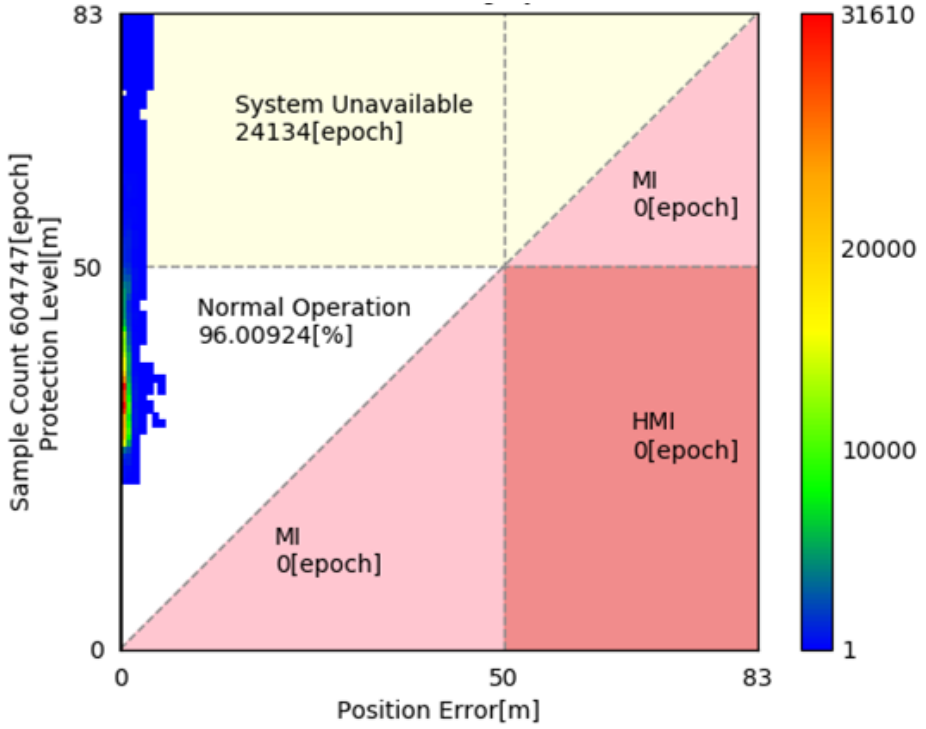

Vertical

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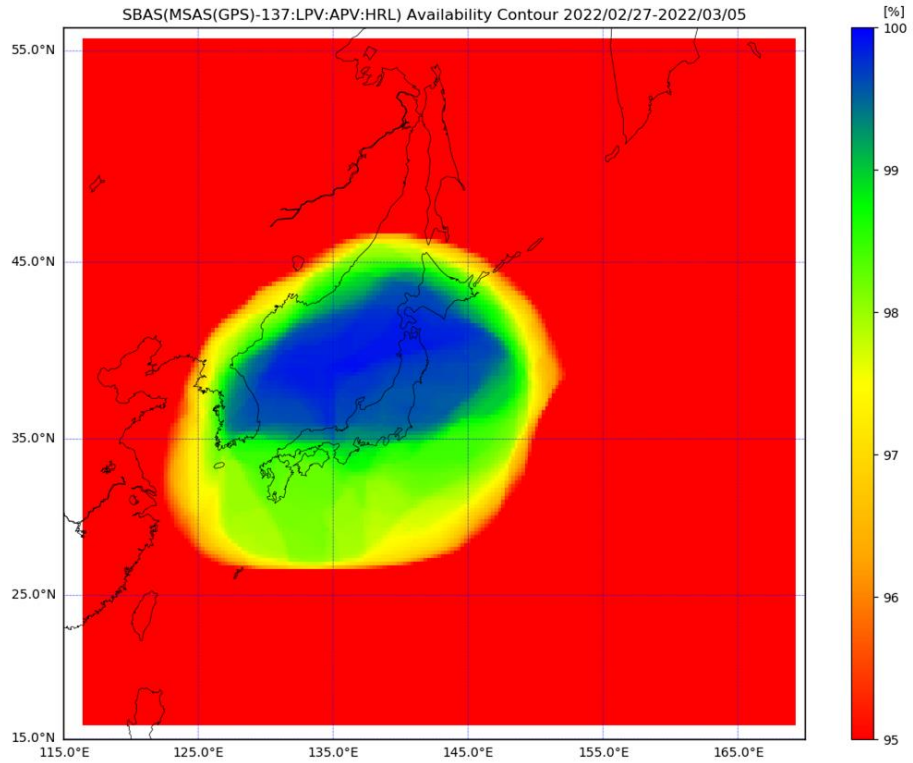
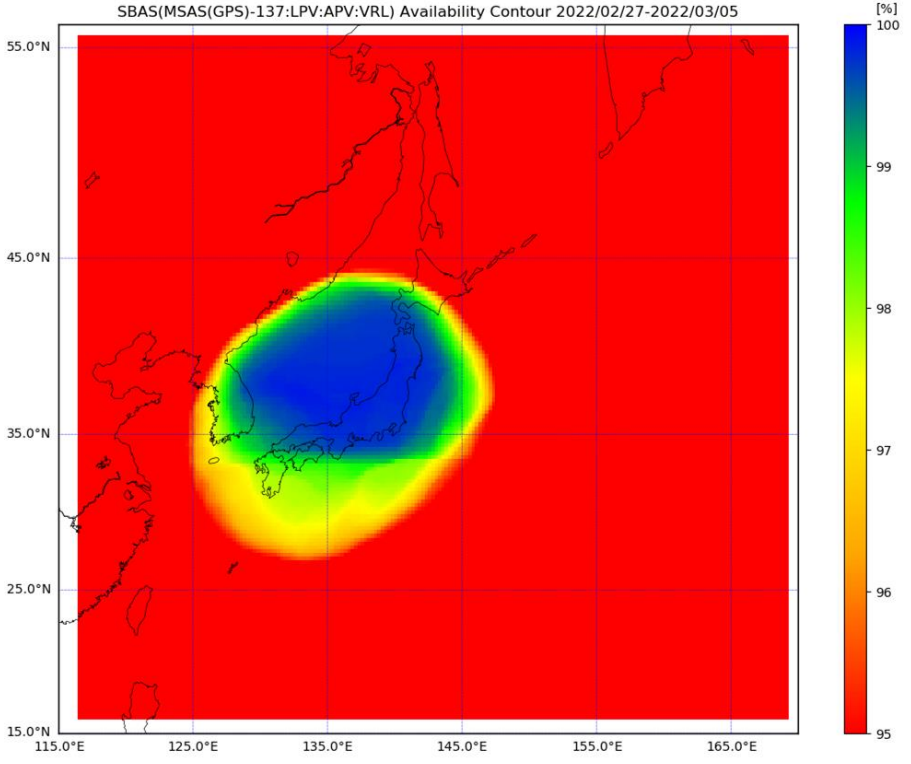
3. Availability Contour（ALL JAPAN）

⊖ Feb. 27 ～ Mar. 5



LPV, APV, Horizontal



LPV, APV, Vertical

MSAS Performance Analysis

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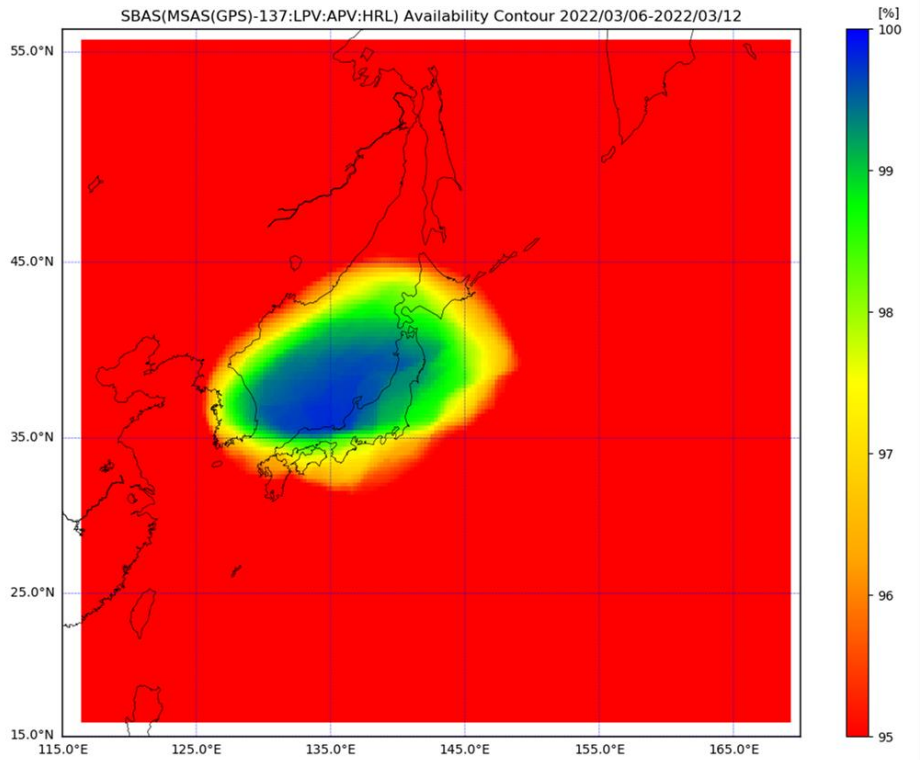
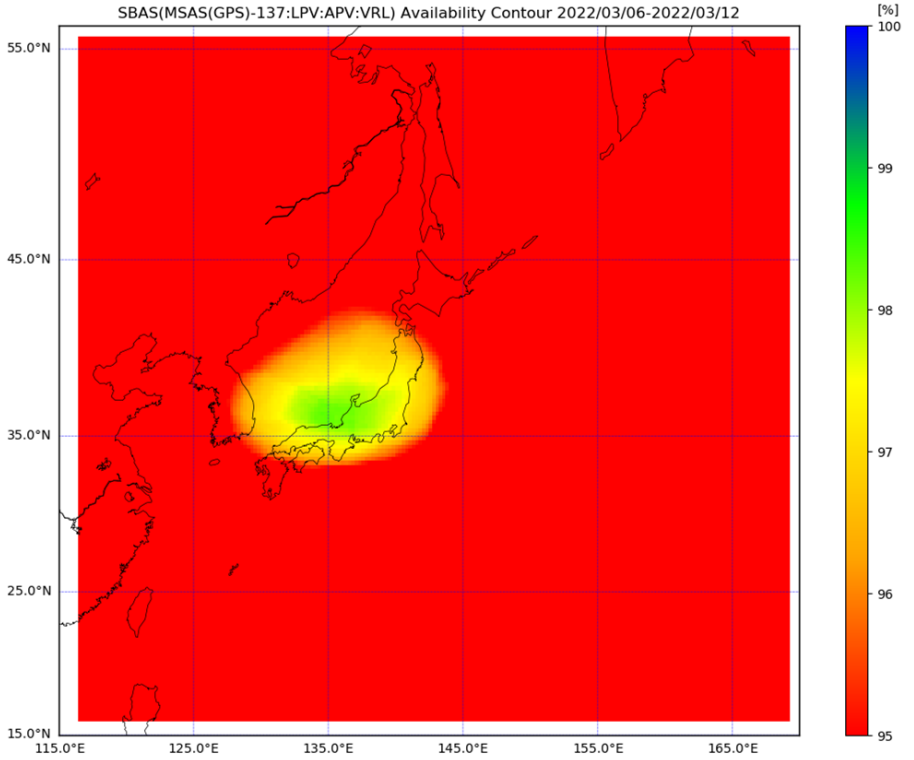
⊜ Mar. 6 ～ Mar. 12



LPV, APV, Horizontal



LPV, APV, Vertical

MSAS Performance Analysis

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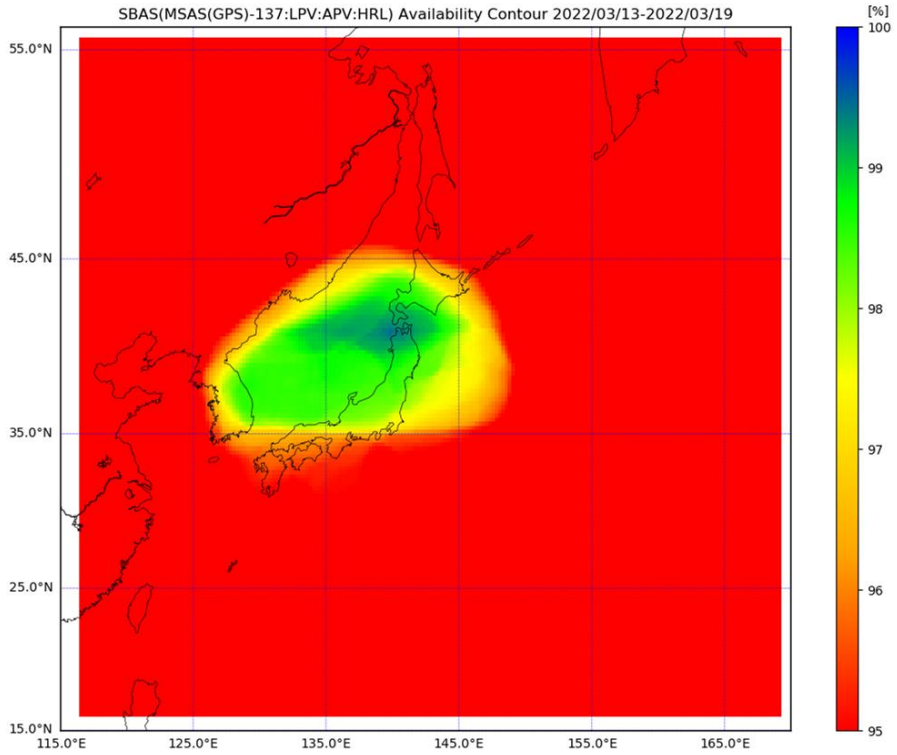
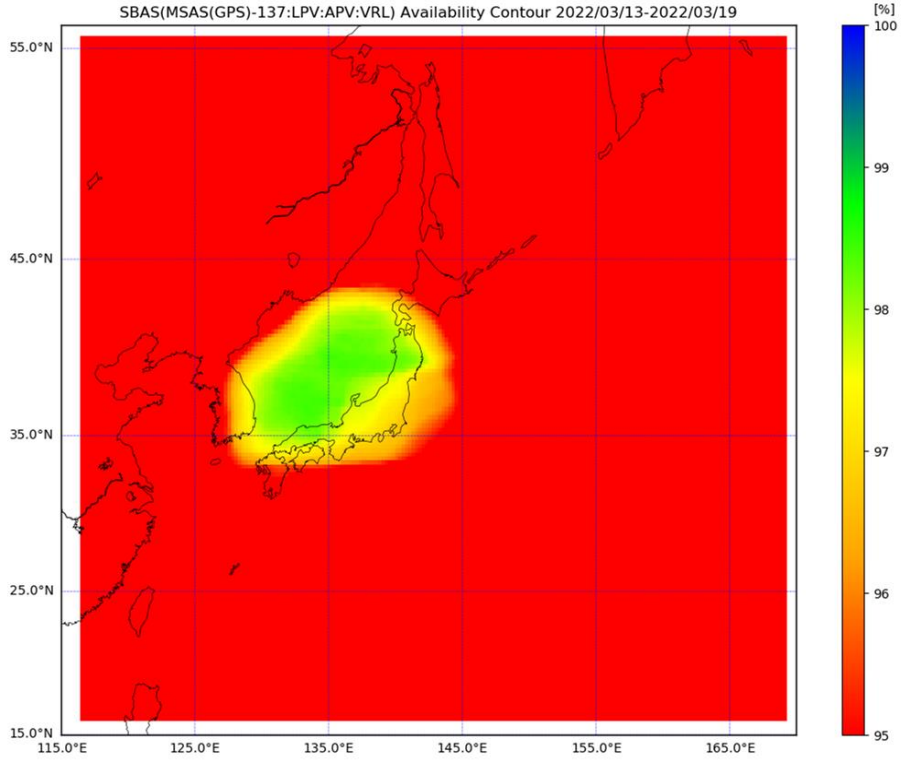
⊛ Mar. 13 ～ Mar. 19



LPV, APV, Horizontal



LPV, APV, Vertical

MSAS Performance Analysis

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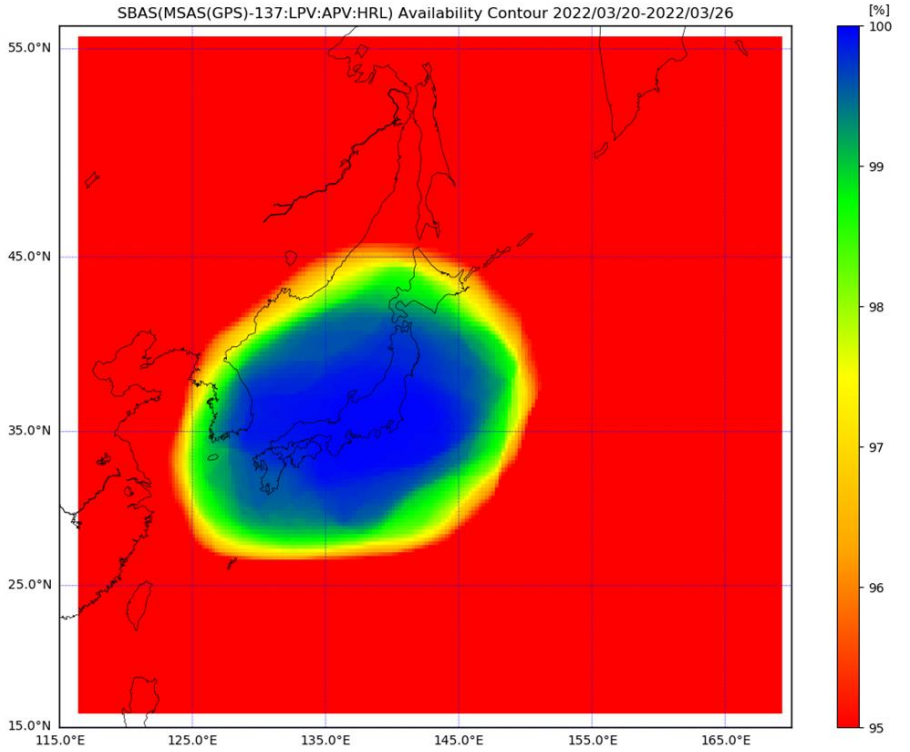
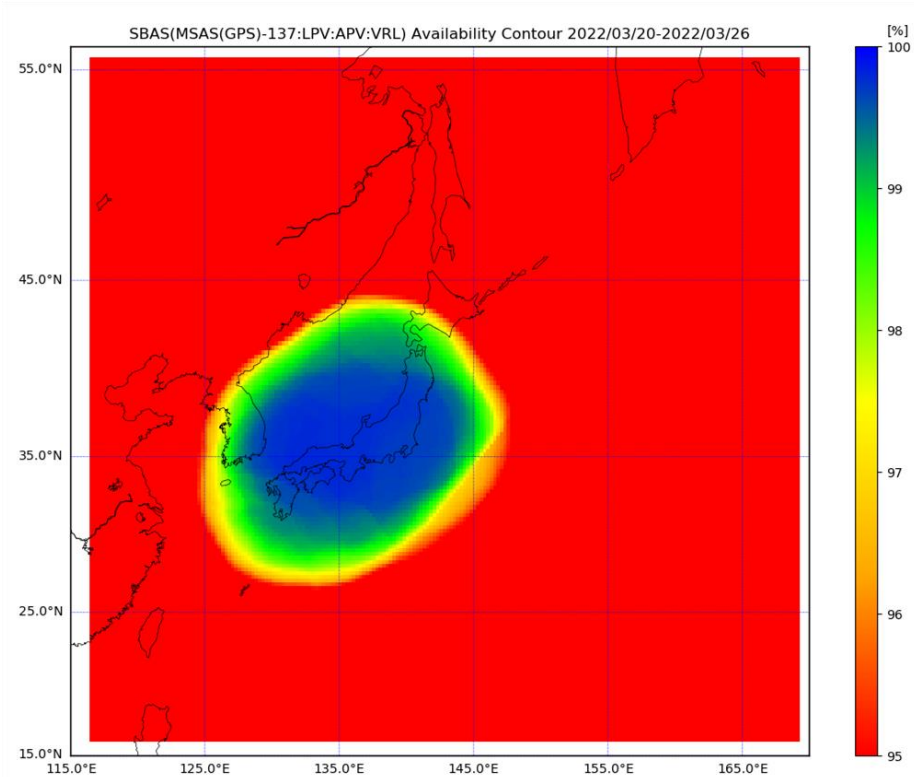
④ Mar. 20 ～ Mar. 26



LPV, APV, Horizontal



LPV, APV, Vertical