

Sample EWS message for mini-Demo on Dec17, 2020

2020/12/03 Kugi

●EWS message data (122bit data) :

(1) **Message A:** Message for Case1

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101011111100000000000010100001101111011010000000111000010010010101000101100011111
000101001111011001000000000000000000000000
```

(2) Message B: Message for Case2

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10011000100000001100010100001101111011010000001110000101110011000011111110001110  
00001010111011001000000000000000000000000
```

● **Test Schedule :**

Date: Dec 17, 2020 (Thu)

Time: 11:00~17:00[JST] / 09:00~15:00[Thai Local Time]

11:00:00~11:59:59[JST]／09:00:00~09:59:59 [Thai Local Time]	Message A
12:00:00~12:59:59[JST]／10:00:00~10:59:59 [Thai Local Time]	Message B
13:00:00~13:59:59[JST]／11:00:00~11:59:59 [Thai Local Time]	Message A
14:00:00~14:59:59[JST]／12:00:00~12:59:59 [Thai Local Time]	Message B
15:00:00~15:59:59[JST]／13:00:00~13:59:59 [Thai Local Time]	Message A
16:00:00~16:59:59[JST]／14:00:00~14:59:59 [Thai Local Time]	Message B

Appendix: Setting Parameter

(1) Message A: Message for Case1

Space Krenovation Park, GISTDA

Address: 88 Moo 9 Tambon Thung Sukala, Amphoe Siracha, CHONBURI 20230

Message Field	Element name	Binary Value	Description	Bit Length
Message Identifier	Message Type	10	Test	2
	Country ID	1011111100	Thailand(=764)	10
	Provider ID	0000	All 0	4
Event	Event Category	000	Geo	3
	Event Sub-Category	0001	Tsunami	4
	Severity	01	Severe	2
Event Chronology	Event Onset Day	00001	01 [day]	5
	Event Onset Hour	10111	23 [h]	5
	Event Onset Minute	101101	45 [min]	6
	Expected Duration	0000	No Duration	4
Guidance to React	Guidance Library	00	International guidance library	2
	Response type	0111	None	4
	Instructions	0000	Test	4
Target Area	Latitude	1001001010100010	13.102770[deg]N (1LSB=0.00275[deg])	16
	Longitude	11000111110001010	100.928047[deg]E (1LSB=0.00275[deg])	17
	Semi-major Axis Length	0111	41803[m] (1LSB=316[m])	4
	Semi-minor Axis Length	0110	20806[m] (1LSB=316[m])	4
	Semi-major Axis Azimuth Angle	01000	46.45[deg] (1LSB=5.8[deg])	5
Parameters	Specific Setting	00000000000000000000	All 0	21
				122

(2) Message B: Message for Case2

Center for Spatial Information Science, at the University of Tokyo

Address: 5-1-5 Kashiwanoha, Kashiwa-shi, Chiba 277-8568, JAPAN

Message Field	Element name	Binary Value	Description	Bit Length
Message Identifier	Message Type	10	Test	2
	Country ID	0110001000	Japan(=392)	10
	Provider ID	0000	All 0	4
Event	Event Category	011	Met	3
	Event Sub-Category	0001	Flood	4
	Severity	01	Severe	2
Event Chronology	Event Onset Day	00001	01 [day]	5
	Event Onset Hour	10111	23 [h]	5
	Event Onset Minute	101101	45 [min]	6
	Expected Duration	0000	No Duration	4
Guidance to React	Guidance Library	00	International guidance library	2
	Response type	0111	None	4
	Instructions	0000	Test	4
Target Area	Latitude	1011001100001111	35.902495[deg]N (1LSB=0.00275[deg])	16
	Longitude	11100011100000101	139.938049[deg]E (1LSB=0.00275[deg])	17
	Semi-major Axis Length	0111	41803[m] (1LSB=316[m])	4
	Semi-minor Axis Length	0110	20806[m] (1LSB=316[m])	4
	Semi-major Axis Azimuth Angle	01000	46.45[deg] (1LSB=5.8[deg])	5
Parameters	Specific Setting	00000000000000000000	All 0	21
				122

Fig1-1: Target Area(Message A)

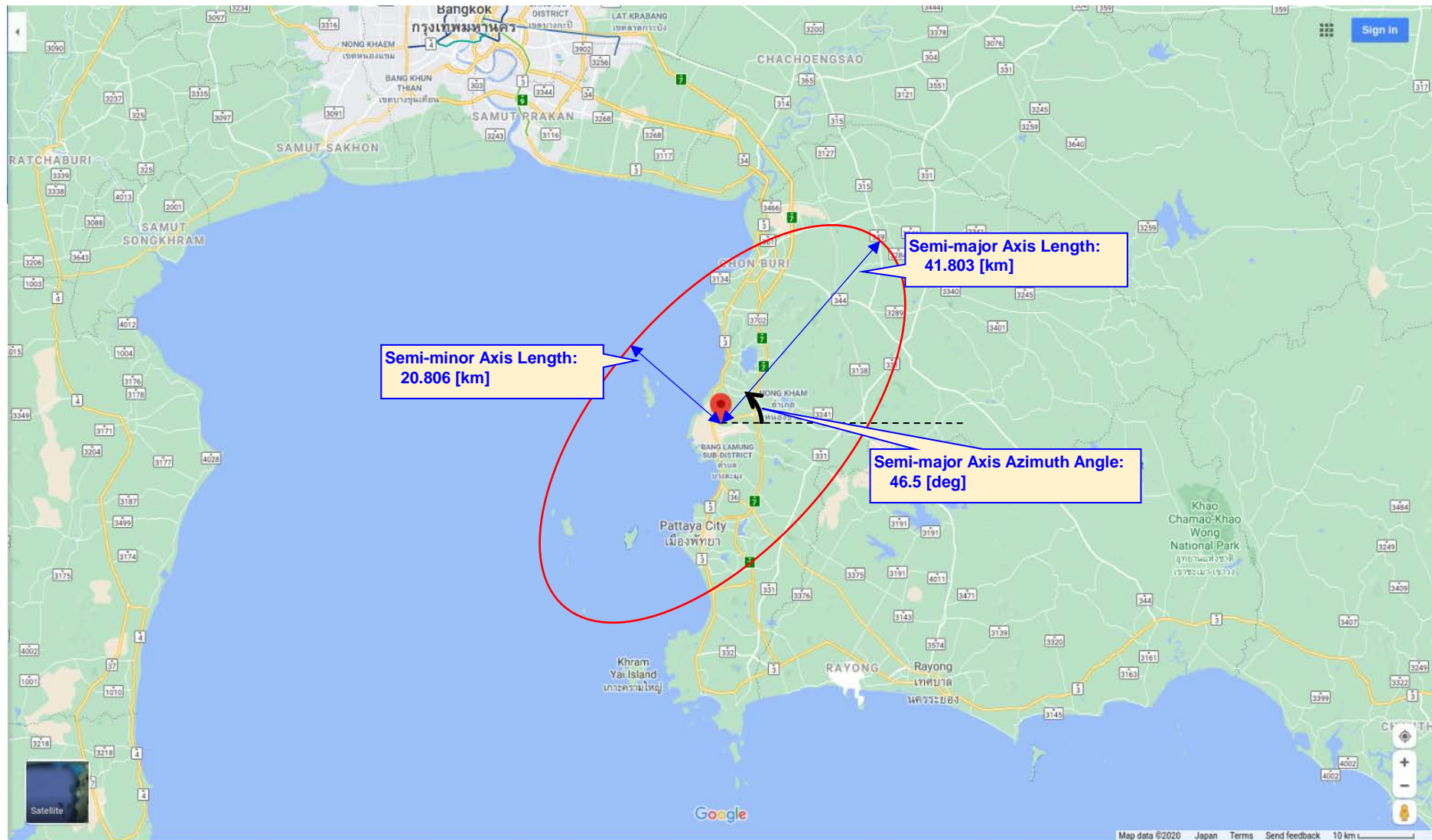


Fig1-2: Target Area(Message A) - the center of the ellipse

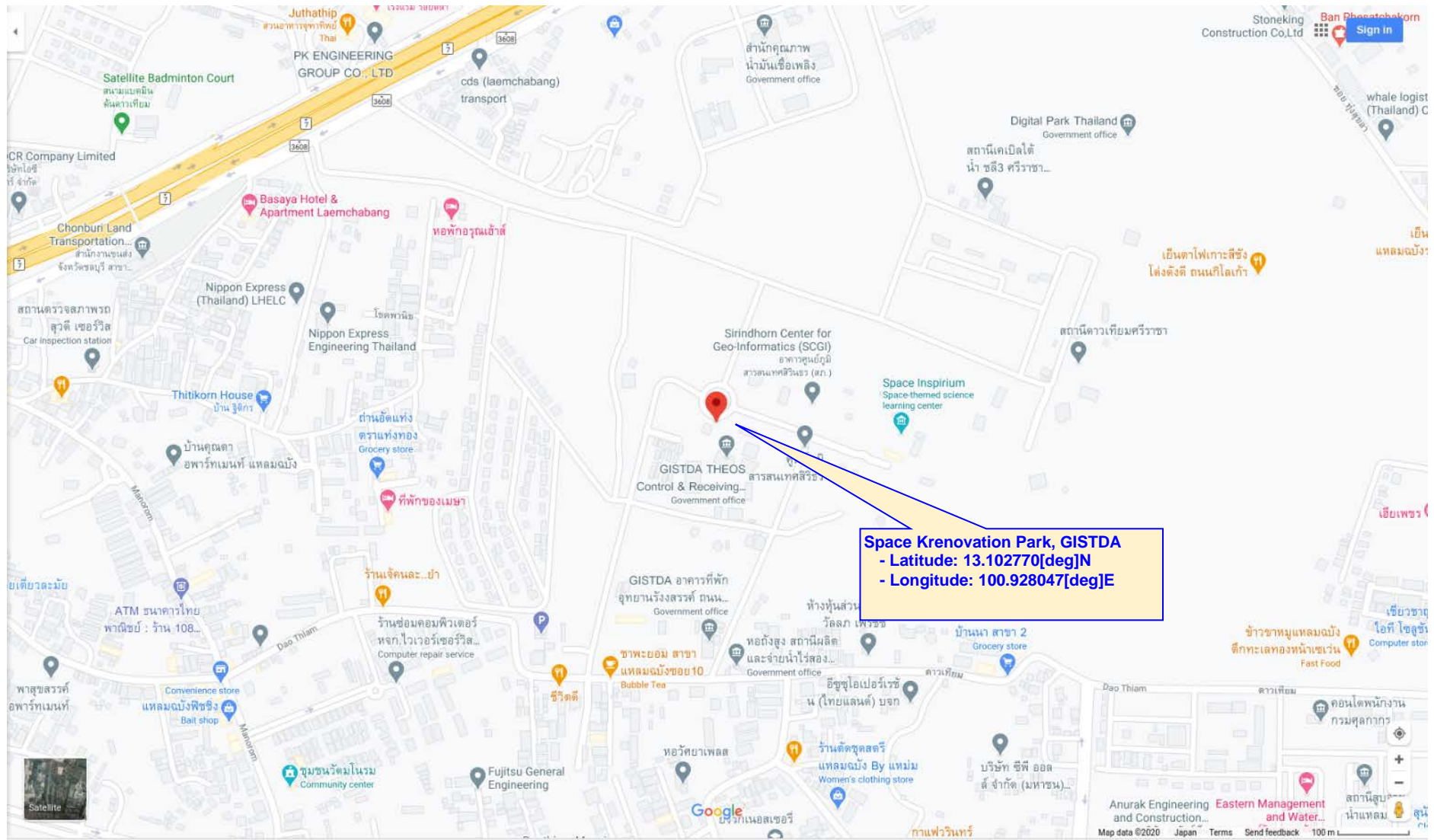


Fig2-1: Target Area(Message B)

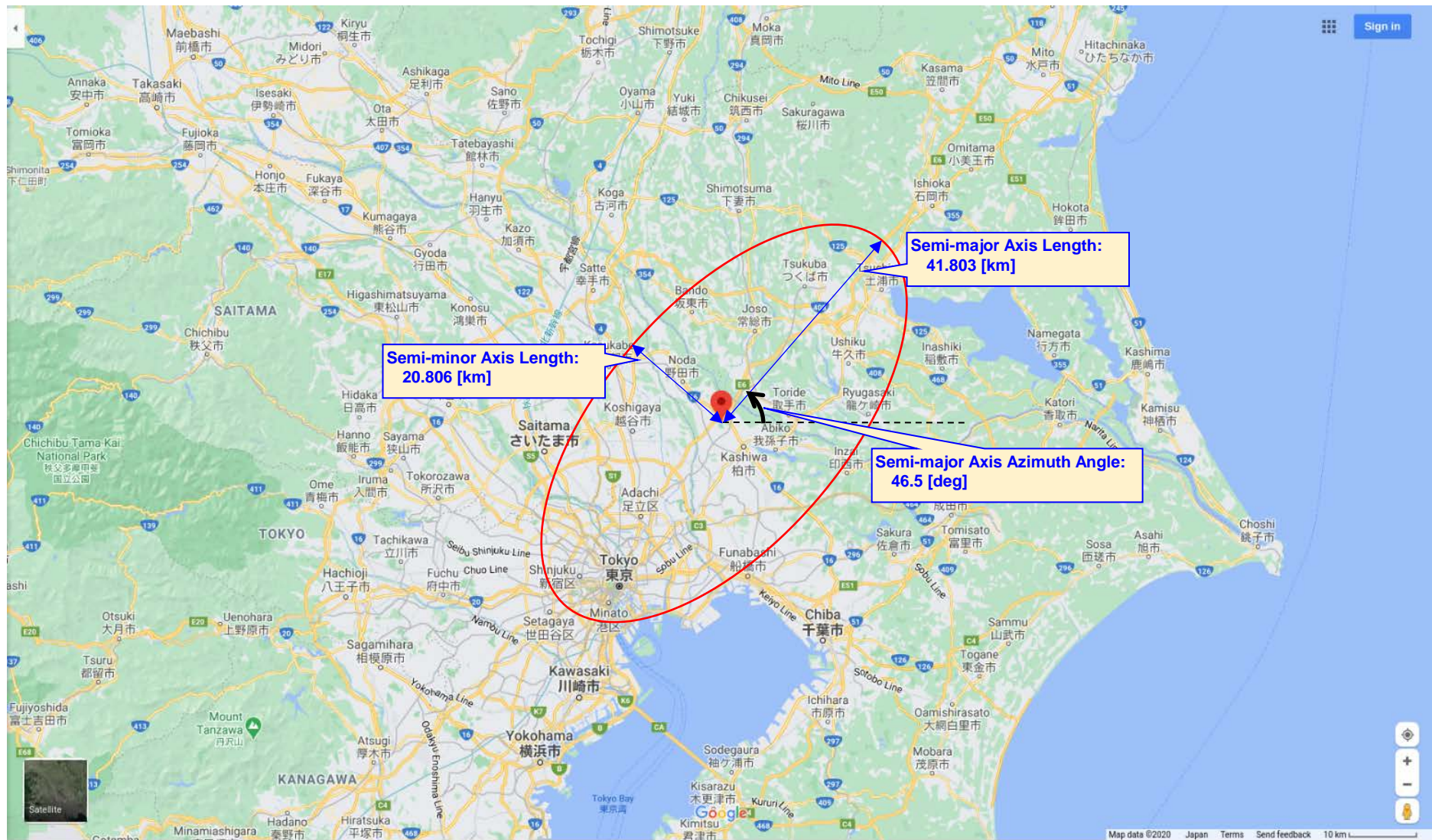
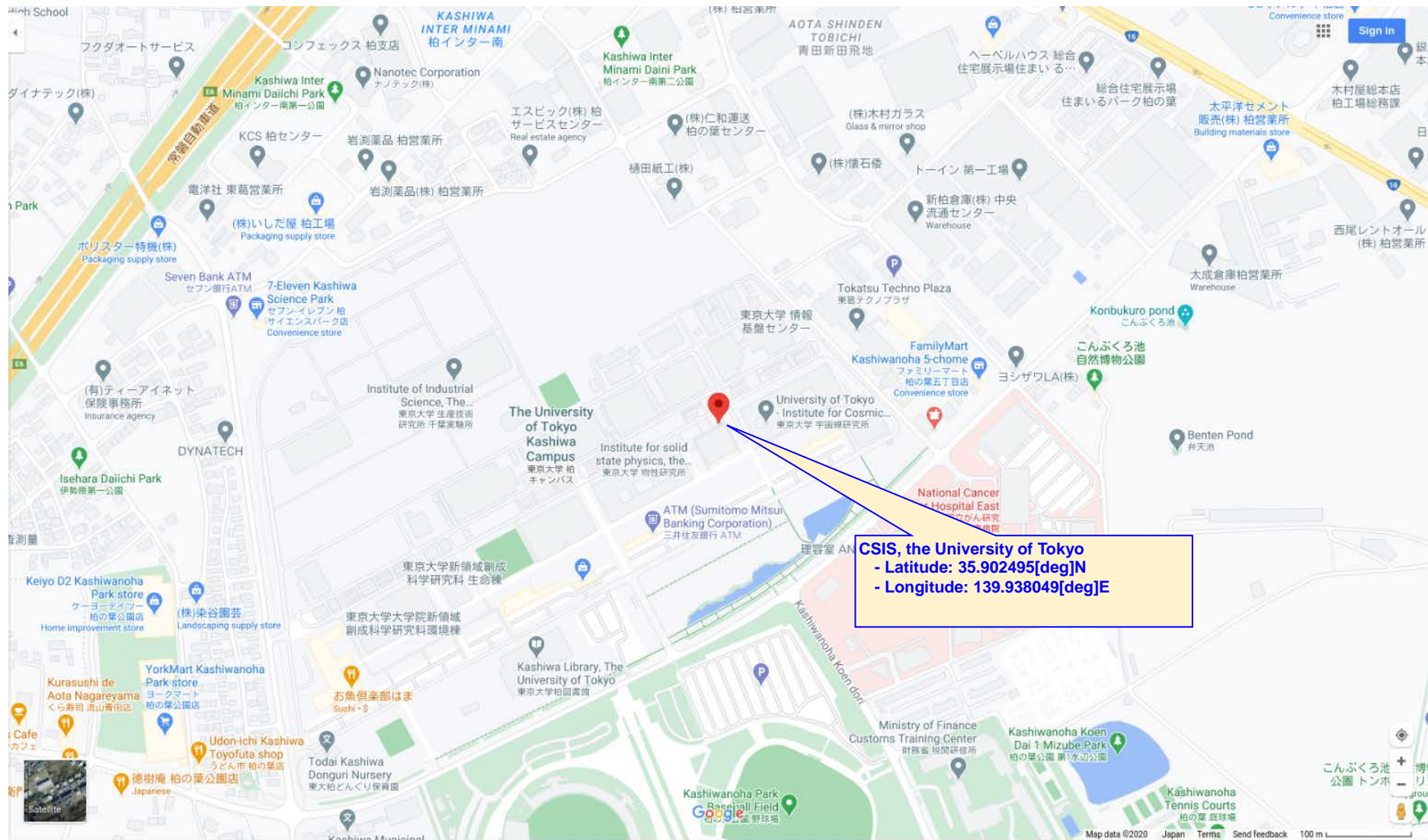


Fig2-2: Target Area(Message B) - the center of the ellipse



• EWS format

“EWS-Message(as of 08Sep2020)_for RPDchallenge.xlsx”

Table1: Sheet”SiS_Message”

		Version	1.0		
Date	2020/9/6				
Common EWS Message for the Signal-in-Space					
Field #	Message field	Element name	Start bit	#bits	length as power of 10 in meters
1	Message Identifier	Message type	0	2	Progressive number of updates of a message issued by the same EWS provider and alerting for the same hazard: 00 Alert 01 Update 10 Test 11 Cancel
2		Country ID	2	10	ID of the country from which the alert is issued. Supranational authorities can also be identified. The country ID is essential to identify the EWS provider issuing the alert and to manage the display authorizations. For test messages sent for the monitoring performances service, this field is set to all 0's.
3		Provider ID	12	4	Issuing EWS provider in the country. For test messages sent for the monitoring performances service, this field is set to all 0's.
4	Event	Event Category	16	3	Category of the event
5		Event Sub-Category	19	4	Detail of the event category. The sub-category is not defined in the CAP fields and will need to be added in the parametric fields of the CAP format exchanged between the EWS provider and the Ground infrastructure to complete the EWS Message.
6		Severity	23	2	Severity of the event. Mostly to adapt the display of the information to a user, in particular to adapt the used color: red for extreme, orange for severe... It is essential as visual information is processed faster by the brain than text.
7	Event chronology	Event Onset	25	16	(Expected) The UTC time when the event occurred: - 5 bits are used to encode the day - 5 bits are used to encode the hour - 6 bits are used to encode the minute The time reference used is UTC.
8		Expected Duration	41	4	Expected validity of the alert in hours.
9	Guidance to react	Guidance Library	45	2	Reference to the guidance to react library to use. A EWS registered national Authority is free to define its own guidance to react library (national library) or to use the guidance to react of a group of countries (regional guidance) or the standardized guidance (international library). The guidance to react libraries are stored in a guidance database. 00 International guidance library 01 National guidance library 10 Regional guidance library 11 new guidance library under validation
10		Response Type	47	4	Guidance to react for the end-user of the EWS. The Response type is driven by the Event category and sub-category and is selected in the guidance to react library encoded in the previous 2 bits.
11		Instruction	51	4	Refinement of the guidance.
12	Target Area	Latitude	55	16	The target area is described as an ellipse. The latitude of center of the ellipse with 305m of precision.. If Target Area bits are all zero, this mean "No Target Area".
		Longitude	71	17	The longitude of center of the ellipse with 305m of precision.
		Semi-major axis length	88	4	The length as a power of 10 in meters
		Semi-minor axis length	92	4	The length as power of 10 in meters
		Semi-major axis azimuth angle	96	5	The azimuth angle of the axis (5.8° precision)
13	Parameters	Specific Setting	101	21	These 21 bits are dedicated to message customisation depending on the event category.
		TOTAL			122

Table2: Sheet"Country ID"

Country		
Code [10bit]	ISO 3166-1 numeric	Country Name
0110001000	392	Japan
1011111100	764	Thailand

Table3: Sheet" Event"

Event					referred from "Peril Classification and Hazard Glossary" p
Code [Bits 0-2]	Event Category	Code [Bits 3-6]	Event Sub-Category	Definition 1	
000	Geo				
		0001	Tsunami	A series of waves (with long wavelengths when traveling across the deep ocean) that are generated by a displacement of massive amounts of water through underwater earthquakes, volcanic eruptions or landslides. Tsunami waves travel at very high speed across the ocean but as they begin to reach shallow water they slow down and the wave grows steeper.	
011	Met				
		0001	Flood	A general term for the overflow of water from a stream channel onto normally dry land in the floodplain (riverine flooding), higher-than normal levels along the coast and in lakes or reservoirs (coastal flooding) as well as ponding of water at or near the point where the rain fell (flash floods).	

Table4: Sheet"Severity"

Severity	
Code [2bit]	Severity
00	Extreme - Extraordinary threat to life or property
01	Severe - Significant threat to life or property
10	Moderate - Possible threat to life or property
11	Minor - Minimal to no known threat to life or property

Table5: Sheet" EventOnset"

Event Onset					
Code [5bit]	Day [day]	Code [5bit]	Hour [h]	Code [6bit]	Minute [min]
00000	0	00000	0	000000	0
00001	1	00001	1	000001	1
00010	2	00010	2	000010	2
00011	3	00011	3	000011	3
11100	28	10101	21	101011	43
11101	29	10110	22	101100	44
11110	30	10111	23	101101	45
11111	31	11000	24	101110	46
		11001	-	101111	47
		11010	-		
		11011	-	111000	56
		11100	-	111001	57
		11101	-	111010	58
		11110	-	111011	59
		11111	-	111100	-
				111101	-
				111110	-
				111111	-

Table6: Sheet"Expected Duration"

Expected Duration	
Code [4bit]	Duration [h]
0000	"No Duration"
0001	Duration < 0.25
0010	0.25 ≤ Duration < 0.5
0011	0.5 ≤ Duration < 0.75
0100	0.75 ≤ Duration < 1
0101	1 ≤ Duration < 1.5
0110	1.5 ≤ Duration < 2
0111	2 ≤ Duration < 3
1000	3 ≤ Duration < 4
1001	4 ≤ Duration < 6
1010	6 ≤ Duration < 8
1011	8 ≤ Duration < 12
1100	12 ≤ Duration < 18
1101	18 ≤ Duration < 24
1110	24 ≤ Duration < 48
1111	48 ≤ Duration

Table7: Sheet"Guidance to react 0.1"

Guidance to react			
Example of a Guidance to react Library			
Code [Bits 0-3]	Response Type (examples of possible response type)	Code [Bits 4-7]	Instructions (examples of possible instructions)
0111	None - No action recommended	0000	Test
		0001	Exercise
		0010	Spare
		0011	Spare
		0100	Spare
		0101	Spare
		0110	No action recommended
		0111	Unavailable guidance
		1000	
		1001	
		1010	
		1011	
		1100	
		1101	
		1110	
		1111	

Table8: Sheet"Latitude(16bit)"

Latitude (16bit) [deg]	
Code [16bit]	angle [deg]
0000000000000000	-90.000000
0000000000000001	-89.997253
0000000000000010	-89.994507
1001001010100001	13.100023
1001001010100010	13.102770
1001001010100011	13.105516
1011001100001110	35.899748
1011001100001111	35.902495
1011001100010000	35.905241
1111111111111101	89.994507
1111111111111110	89.997253
1111111111111111	90.000000

interval
0.0027466

Table9: Sheet"Longitude(17bit)"

Longitude (17bit) [deg]

Code [17bit]	angle [deg]
00000000000000000	-180.000000
00000000000000001	-179.997253
00000000000000010	-179.994507
11000111110001001	100.925300
11000111110001010	100.928047
11000111110001011	100.930793
11100011100000100	139.935302
11100011100000101	139.938049
11100011100000110	139.940795
11111111111111101	179.994507
11111111111111110	179.997253
11111111111111111	180.000000

interval
0.0027466

Table10: Sheet"Axis(4bit)"

Axis (4bit) [m]

Code [4bit]	Radius [m]
0000	316
0001	635
0010	1277
0011	2565
0100	5154
0101	10355
0110	20806
0111	41803
1000	83993
1001	168761
1010	339081
1011	681292
1100	1368875
1101	2750388
1110	5526170
1111	11103363

$$Radius[m] = 10^{2.5 + \frac{a}{3.3}}$$

Table11: Sheet"Azimuth angle"

Azimuth angle [deg]

Code [5bit]	angle [deg]
00000	0.00
00001	5.81
00010	11.61
00011	17.42
00100	23.23
00101	29.03
00110	34.84
00111	40.65
01000	46.45
01001	52.26
01010	58.06
11101	168.39
11110	174.19
11111	180.00

$$180/(2^5-1) = \text{interval} = 5.80645161$$