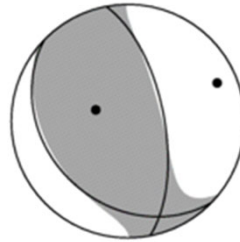## ◆Overview

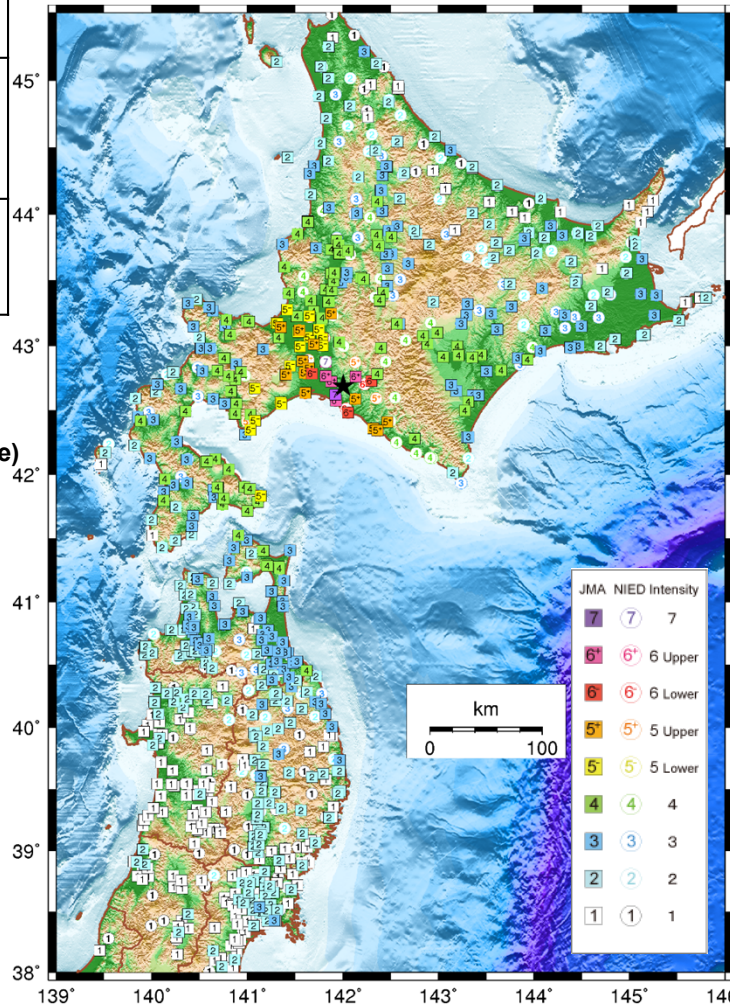|	
Origin Time	2018-09-06 03:07 (JST) 2018-09-05 18:07 (UTC)
JMA Magnitude (M_{JMA})	6.7
Moment Magnitude (Mw)	6.6 (USGS, F-net)
Epicenter Region	Eastern Iburi Region, Hokkaido.
Depth	37 km
Focal Mechanism	Reverse fault with a compression axis in an ENE-WSW direction
Maximum JMA Seismic Intensity	7 (Hokkaido Pref.)
Long-Period Ground Motion (LPGM) Class	Class 4 in Hokkaido Pref. (See the figure below)
Damage	41 dead, 9 seriously injured, 646 slightly injured, 64 houses completely destroyed, 57 houses partially destroyed, and 72 houses partially damaged. [1]
Remarks	Two fire incidents occurred; one at the Muroran petrochemical complex and the other at the Tomato-Atsuma thermal power plant. [1]

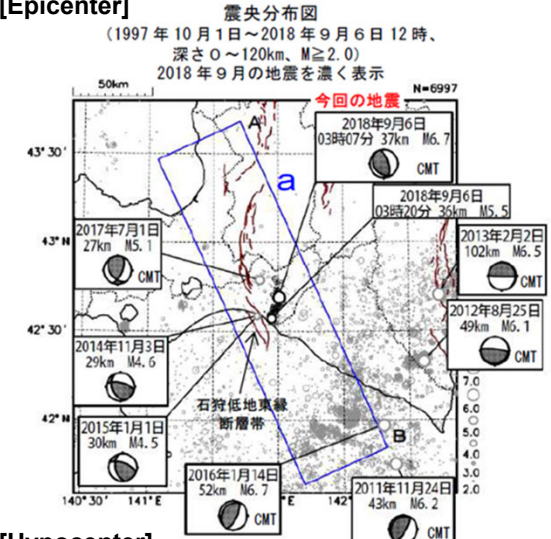http://www.jma.go.jp/jma/press/1809/10b/kaisetsu201809101100.pdf
[1]: http://www.fdma.go.jp/bn/2018/detail/1074.html

◆ LPGM JMA Seismic Intensity Map
(See the next page for more information about the scale)

https://www.data.jma.go.jp/eew/data/ltpgm_explain/data/past/20180906030805/index.html

◆Moment Tensor

Mw = 6.6
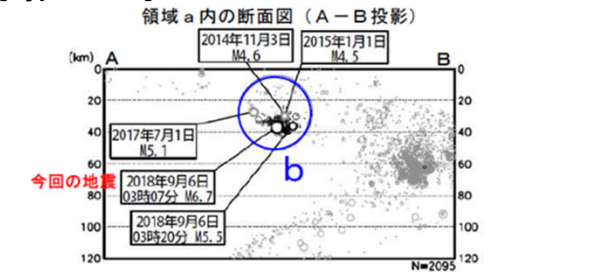Mo [Nm] = 1.00e+19
NP1: (134, 30, 59)
NP2: (349, 65, 107)

F-net : http://www.fnet.bosai.go.jp/event/tdmt.php?_id=20180905180700&LANG=en

◆JMA Seismic Intensity Map
(See the next page for more information about the scale)

JMA	NIED	Intensity
7	⑦	7
6⁺	⑥⁺	6 Upper
6⁻	⑥⁻	6 Lower
5⁺	⑤⁺	5 Upper
5⁻	⑤⁻	5 Lower
4	④	4
3	③	3
2	②	2
1	①	1

◆Epicenter and Hypocenter Distribution
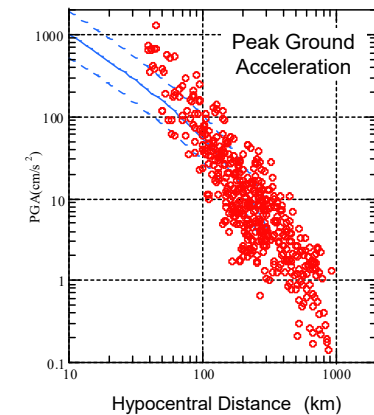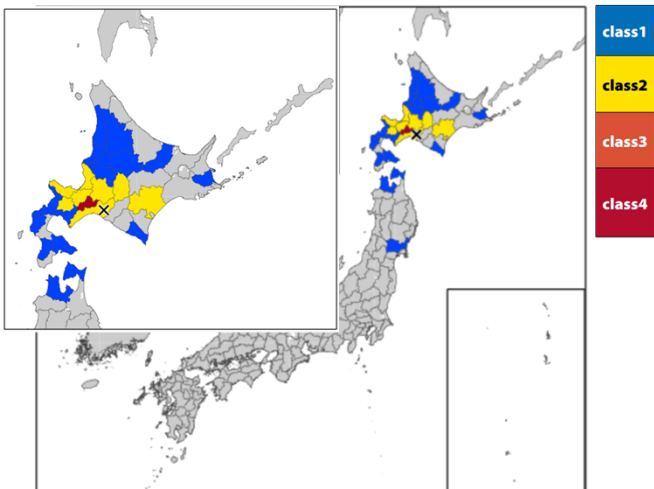**[Epicenter]**

[Hypocenter]

https://www.jma.go.jp/jma/press/1809/06i/kaisetsu201809061730_5.pdf

◆ Attenuation Characteristics of Ground Motion
○ K-NET, KiK-net (Surface)
— Si and Midorikawa (1999) : Crustal earthquake, Mw6.6 (F-net)

● **Summary of the JMA Seismic Intensity Scale**

0
● Imperceptible to people.

1
● Felt slightly by some people keeping quiet in buildings.

2
● Felt by many people keeping quiet in buildings.

3
● Felt by most people in buildings.

4
● Most people are startled.
● Hanging objects such as lamps swing significantly.
● Unstable ornaments may fall.

5 Lower
● Many people are frightened and feel the need to hold onto something stable.
● Dishes in cupboards and items on bookshelves may fall.
● Unsecured furniture may move, and unstable furniture may topple over.

5 Upper
● Many people find it difficult to walk without holding onto something stable.
● Dishes in cupboards and items on bookshelves are more likely to fall.
● Unsecured furniture may topple over.
● Unreinforced concrete-block walls may collapse.

6 Lower
● It is difficult to remain standing.
● Many unsecured furniture moves and may topple over. Doors may be stuck.
● Wall tiles and windows may sustain damage and fall.
● In wooden houses with low earthquake resistance, tiles may fall and buildings may lean or collapse.

High earthquake resistance   Low earthquake resistance

6 Upper
● It is impossible to move without crawling. People may be thrown through the air.
● Most of unsecured furniture moves, and is more likely to topple over.
● Wooden houses with high earthquake resistance may lean in some cases.
● Large cracks may form, and large landslides and massif collapses may be seen.

High earthquake resistance   Low earthquake resistance

7
● Wooden houses with low earthquake resistance are even more likely to lean or collapse.
● Wooden houses with high earthquake resistance may lean in some cases.
● Reinforced-concrete buildings with low earthquake resistance are more likely to collapse.

High earthquake resistance   Low earthquake resistance

JMA Intensity Scale for Long-Period Ground Motion

Long-Period Ground Motion(LPGM) class	Human perception	Indoor situation
class1	• Felt by most people in buildings. Some people are startled.	• Hanging items such as lamps and blinds swing significantly.
class2	• Many people find it difficult to walk without holding onto something stable.	• Furniture on casters moves slightly. • Items in cupboards and bookshelves may fall. • Some of unsecured moves and may topple over.
class3	• It's difficult to remain standing.	• Furniture on casters moves significantly. • Some of unsecured moves and may topple over. • Partition walls may crack.
class4	• It's impossible to remain standing or move without crawling. People are at the mercy of shaking.	• Furniture on casters moves significantly and may topple over. • Unsecured furniture moves and may topple over. • Partition walls are likely to crack.

As Seismic Intensity data only partially express the strength of long-period shaking on higher floors, JMA is using a four-category intensity scale for LPGM to indicate the strength of shaking in high-rise buildings and the possibility of related damage.

The scale quantifies the effects of shaking in a high-rise building with a natural period of around 1.5 to 8 seconds (approx. 14 stories or more). There are four classes based on degrees of human perception and damage, such as toppling or shifting of furniture and fixtures. The conditions indicated are a rough guide, and actual damage may differ. Effects also vary with factors such as building/structural conditions and the duration of earthquake motion.

https://www.jma.go.jp/jma/kishou/books/jishintsunami/en/jishintsunami_en.pdf