Korea Public Perception
on Fukushima Nuclear Accident

Seung-Hoi Kim[1], Yu-i Ha[1], Meeyoung Cha[1],
Jiyon Lee[2], Byung-Jik Kim[2], and Dong-Myung Lee[2]

[1]Graduate School of Culture Technology, School of Computing, KAIST, South Korea
[2]Korea Institute of Nuclear Safety, South Korea

Fukushima Nuclear Accident

- On 11th March 2011, the massive earthquake and tsunami has caused a nuclear crisis in Japan. After the earthquake, cooling systems at the Fukushima Daiichi Nuclear Power Station failed shortly and soon after the accident, radioactive material flowed into the sea.

Social Media and Public Discourses

- ***Which topics influenced Korea public the most in the after math of the Fukushima nuclear accident?***

- Following the Fukushima nuclear accident in Japan, South Korea was affected gradually via the burst of public discussion on nuclear safety that ranged from radio-active contamination, nuclear waste, etc.
- These various online chatters may increase the rate of negative public sentiment, which speed up the public anxiety. It has made the Korea public more sensitive to the nuclear issues, and also causes various social movement, such as an antinuclear protest.

- Since social media facilitate communication and help form social capitals prior to occurrence of such catastrophic situation [1], observing what topics are discussed online is the most pressing task for minimizing social confusion in emergency situation.

Data Collection

- 4-year period: Jan 1, 2011 – Dec 14, 2014
- Scale: 158,964 Korean tweets including 'radioactive', 'radiation', 'nuclear power'.
- Meta-data gathered: user name, tweet content including URLs, time of posting, number of retweets, favorites, and comments.

Acknowledgement

[1] Kaigo, M., 2012. Social media usage during disasters and social capital: Twitter and the Great East Japan earthquake. Keio Communication Review,34, pp.19-35.

Active level of information propagation
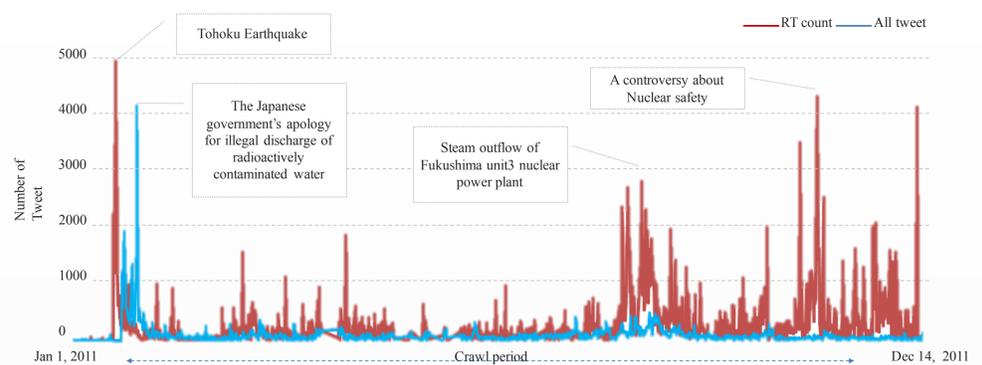
- The average of 100 or more tweets related to nuclear power has been generated following the accident, which is compared to the amount of tweets generated prior to the accident, the number of the tweets increased more than 10 times after the Fukushima accident.

Topic Keyword and Bayesian Network

Topic	Classification	Keywords
Location (18.6%)	Korea	Domestic, Republic of Korea, Our country, Korean peninsula, Korea
	Japan	Tokyo, Fukushima, Japan
Health (20.9%)	Human body	Thyroid, Health, Leukemia, Maternity, Cancer, Pregnancy, Radiation exposure
	Food	Groceries, Food
Environment (23.3%)	Water/Sea pollution	Leakage, Sea, Import, Fishery products, Pollution, Environment
	Air pollution	Agricultural product, Leakage, Travel, Forest resources
Nuclear Power (37.2%)	Radiation	Cesium, Iodine
	Administration	Operation, Alert, Worn out, Security, Black out, Corruption, Accident, Stability, Media control, Risk management, Risk, Concealment, Doubt, Fact

- Identified a set of 43 keywords with 4 higher-level concepts from nuclear-related tweets.

Keyword mention rate   Bayesian network and recursive partitioning result
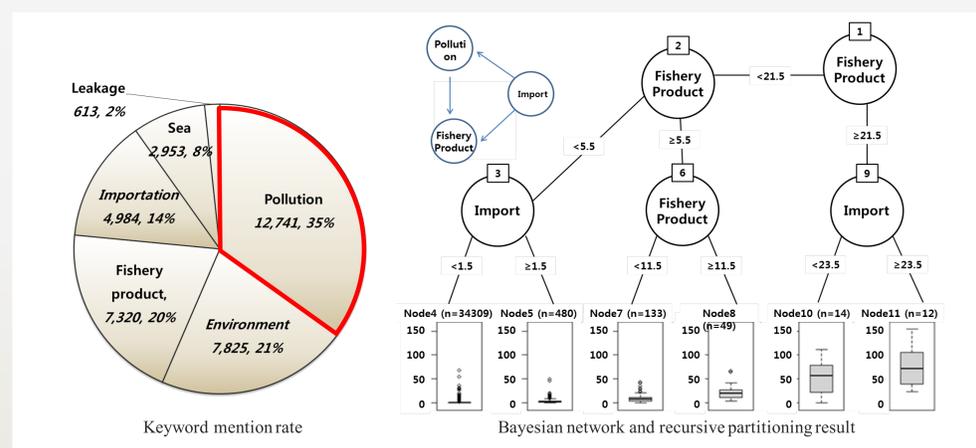
- Topics were interlinked closely and represented both apprehension and concern about health threats and pollution.