Why it is interesting?

- Early warning system to the authorities and public which potentially save thousands of lives.
- Gives people hope that earthquake can be predictable to forecast the location, magnitude and time of the event.

Hypotheses? Prediction?

- Investigate the correlation between the unusual animals' behavior prior to earthquake and utilization of seismic sensor and instruments.
- Examine the synchronization of geophysical rhythms and biological clocks
- Animals have the ability to anticipate upcoming earthquakes due to the fact that they have high sensitivity towards sensation, perception and emotion.

What had been done?

- At the Baichkou experimental station, the breathing rhythm of the cats altered remarkably.
- In the meantime, less than 100 miles away, the penguins at the Hongshan experimental station displayed signs of being startled and furiously flapped their wings.
- The researchers forecasted that M4 earthquake would take place within 24h. As expected, the next morning a M4.8 earthquake arrived.

Motion triggered camera observation also was operated in wildlife setting within The Yanshaqan National Park and conservation areas.

Number of animals recorded on camera started to decline about 23 days prior to earthquake and accelerating decline 5 days before the earthquake.

Researchers measured and analyzed the insulin sensitivity, plasma glucocorticoid levels and energy intake in the rats prior to earthquake.

Compared the result with another group of rats acted as control group.

Revealed a drastic insulin resistance (IR), elevation in plasma glucocorticoid levels and substantial increase in food intake two days before the earthquake.
Results

Disturbance in Ionosphere

Fig. 6. Illustration of pre-earthquake air ionisation at ground level above a future hypocentral region, leading to a bubble of positively charged air that will rise upward to stratospheric height and move through the mesosphere, pulling down electrons in the ionospheric plasma (Freund, 2013).

Conclusion

- Animals have the ability to predict earthquake and it is shown by their behavioral and physiological changes prior to the event.
- A further study could also be done by conducting an experiment to know which species would be able to show their behavioral and physiological changes the earliest.
- Authorities would be able to minimize the number of destruction and fatalities or injuries.

Questions

1) Propose two methods used by the researchers to examine behavioral or physiological changes in animals prior to earthquake?
2) Give two possible pre-earthquake phenomena associated with geophysical changes that trigger abnormal animals' behavior?
3) How successful was this biological sensor? Why it is important?