

(For JSPS Fellow)

Form B-5

Date (日付)

14/07/2014 (Date/Month/Year: 日/月/年)

**Activity Report -Science Dialogue Program-**  
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): Md. Rabiul Haque Biswas (ID No. P13325)

- Participating school (学校名): Iwate Prefectural Kamaishi High School

- Date (実施日時): 01/07/2014 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): (in English) Application of Luminescence and Electron Spin Resonance to Earth and Planetary Sciences

(in Japanese)

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

The lecture was an introductory lecture on application of luminescence and electron spin resonance (ESR) to earth and planetary sciences. Starting with the importance of earth science study and its interdisciplinary nature, the following topics were discussed.

1. Importance of luminescence and ESR chronology in earth science.
2. Natural radiation dosimeters, Quartz and Feldspar, used for chronology study.
3. Natural radioelements, radiations emitting from those radioelements, and their ionization nature.
4. How luminescence and ESR signals originate in natural crystals, like Quartz and Feldspar due to natural radioactive elements?
5. How those signals can be used for dosimetry?
6. How age of natural event is calculated?
7. Challenging aspects in Luminescence and ESR dating.
8. Different application to earth sciences, with special focus on past volcanic history. How volcano originates, why thephrochronoly is important, challenging aspects, particularly in dating Japanese tephra.
9. Application to Planetary sciences. Extra-terrestrial bodies (ETB) such as planets, asteroids, meteoroids, etc., with negligible atmosphere and magnetic field, are constantly bombarded with high energy, heavy charged particles (HCPs) originating from the Galactic cosmic rays and Solar flares. The particle energies can range from 100 MeV to 1 TeV per nucleon. These radiations induce luminescence in the constituent minerals, mainly plagioclase feldspar.
10. How luminescence of meteorites help to understand planetary sciences, like thermal and metamorphism history of meteorite, meteorite orbit, terrestrial age, and cosmic ray exposure age estimation.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 110 mins (分), Q&A time (質疑応答時間)      min (分)

**Total lecture time was 110 mins. Q&A was in between, after each topic students were allowed to ask question. Around one third time was spend for Q&A.**

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

**Power point presentation and board work** \_\_\_\_\_

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

It was not necessary to interpret. Student could undestand english. However, english teacher Ms. Saki Fujishima and the earth science teacher Mr. Watanuki were present in the lecture and they sometimes helped in communication \_\_\_\_\_

◆Name and title of accompanied person (同行者 職・氏名)

**\_Ms. Saki Fujishima (English teacher) and Mr. Watanuki (Earth Science teacher)\_**

◆Other note worthy information (その他特筆すべき事項):

\_\_\_\_\_

- Impressions and opinions from accompanied person (同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):

**Overall impression I got that students understood the lecture.**