

(For JSPS Fellow)

Form B-5

Date (日付)

24/02/2015 (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): SKRZYPEK ETIENNE (ID No. P13715)

- Participating school (学校名): Kyuyo High School, Okinawa City, Okinawa Prefecture

- Date (実施日時): 20/02/2015 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Knowing the age of rocks

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

The presentation was composed of four parts.

To begin, I briefly presented my country, France, but I spent more time on my home region, Alsace. In a quick review, I wanted to show how this region, which is located in the centre of Europe, has been evolving for the last two thousand years. The simple historical review starts with the influence of the Roman Empire, continues with architectural achievements of the Middle Age, and finishes with the numerous wars of the XIXth and XXth centuries. My goal was to emphasize the influence of both French and German cultures in order to explain the present-day situation of the region and its capital, Strasbourg, which is also the capital of Europe.

The second part of the talk starts with a short reflection on the importance of scientific research. By doing this, I want the student to understand the reasons that pushed me to become a researcher. Then, I will present the techniques that are typically used by researchers in Earth Sciences. Because geology is a natural science, we usually start with field observations. We observe the different rocks and minerals, try to understand how they are formed, deformed or transformed, and prepare geological maps. We also collect samples that will be analyzed in the laboratory. For that, we prepare thin sections of rocks that can be observed with optical or electron microscopes. Using different instruments, we can understand the structure or chemical composition of very small objects (down to a few micrometers).

The third part is dedicated to one aspect of my current research in Japan: geochronology. Geochronology is the science that tries to date rocks and minerals. Based on my recent work, I would like to explain how we can determine the age of rocks, especially those which are now exposed in south-west Japan. In order to obtain the age of granites from Yamaguchi Prefecture, I use chemical analyses of small minerals included in these rocks: zircons. Zircon is a mineral that can possess small amounts of Uranium. Uranium (U) is a radioactive element which decays to Lead (Pb) with time. Using this property, we can measure the amounts of U and Pb to calculate the age of the sample. I would like to explain the entire dating process, from mineral separation to chemical analyses. The basic physical concepts will be recalled for understanding.

The final part of the lecture is made of practical exercises in order to interact with the students. These are short questions around the theme "The different types of rocks and minerals". The logical exercises do not require advanced geological knowledge, but will try to make the students think about geological processes. The very end of the lecture will be dedicated to the recognition of mineral samples, giving the students the possibility to touch geological objects and discover the world of mineralogy.

- Language used (使用言語): English and some Japanese, Japanese explanations by the accompanying colleague

- Lecture format (講演形式):

◆Lecture time (講演時間) 120 min (分), Q&A time (質疑応答時間) 10 min (分)

◆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))

Mostly using projector. Practical exercises on the blackboard and handouts. Final part with observation of rock samples.

◆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))

The accompanying Japanese colleague translated difficult parts of the presentation, repeated some concepts and helped to answer to the student's questions.

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

AMANO Saori, 2nd year Master student _____

◆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。)

全体的に授業の雰囲気良かったと思う。岩石学というなかなか親しみのない分野の研究の話であったが、予想以上に生徒が話を聞いてくれ、なおかつ講師の英語での説明もきちんと理解しているように思われた。いくつか生徒に質問に答えてもらう機会があり、最初は遠慮がちな様子でなかなか手があがらなかったが、慣れてくると積極的に答える生徒も見られた。選択制で地学を学ばない生徒もいる高校もあると聞かすが、今回は生徒全員が地学を学ぶ機会があり、基本を知っていたからより深い理解にもつながったと思う。

岩石学は日常生活とはあまり関わりのない研究分野であり、始まる前はその研究をして、何につながるのかという質問が生徒からあるのではないかと予想していたが、そのような質問は見らなかったことが、意外に思われた。たとえ理学部に入ってもなかなか選択する学生が少なく、マイナーな研究分野である岩石学について、これから受験を控えた高校生に知ってもらうのに良い機会になったと思う。

那覇市内から離れてはいるが、高校へのアクセスがよく、開始時間も特に移動で急ぐ必要がなく、ちょうど良かったと思う。京都からの移動に時間がかかる分、前泊が許可されたのはありがたかった。