

(For JSPS Fellow)

Form B-5

Date (日付) 16/11/2016

(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): Agnes Weiner (ID No. P15781)
- Participating school (学校名): Iwate Prefectural Mizusawa Highschool
- Date (実施日時): 15/11/2016 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) Microorganisms in a changing ocean  
(in Japanese) 海の変化と微生物
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

I am a marine biologist and my research focuses on the biodiversity and systematics of marine single-celled eukaryotes, called Foraminifera. Foraminifera are small, but they are widely distributed in the ocean. They are very abundant in all ecosystems from ocean shores to the deep sea. In order to protect their cell, they construct beautiful shells around it. These shells sink to the seafloor after the death of the organism and are preserved as microfossils in marine sediments. Thanks to these fossils we know that foraminifera appeared for the first time in the ocean about 560 Million years ago. Yet, our oceans will likely experience severe changes in the future, due to the influences of climate change. The temperature of the ocean will increase and the pH decrease, a phenomenon called ocean acidification. Foraminiferal shells are made of calcite, a mineral that is sensitive to low pH conditions. Therefore, it is very likely that they will be negatively affected by climate change and that their diversity will be reduced.

In order to understand the effect of climate change on these organisms, it is important to know how many species currently exist and how they are distributed. I am especially interested in planktonic Foraminifera, which occur in the open ocean. For collecting samples I take part in ship cruises to many different areas of the world. After collection, I identify the diversity of planktonic Foraminifera by comparing the shape of their shells in great detail. In addition, I use genetic methods to group Foraminifera into different taxonomic units. Using the genetic information I can also construct phylogenetic trees to understand the evolutionary relationships between different species.

Still today a large amount of the diversity of marine eukaryotic microorganisms remains unknown, and therefore detecting and describing this diversity is an important and exciting task in marine research.

- Language used (使用言語): English

- Lecture format (講演形式):

◆Lecture time (講演時間) 45 min (分), Q&A time (質疑応答時間) 15 min (分), Lab work: 30 min

◆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))

I used a powerpoint presentation and projector for my lecture and also had plastic models of foraminifera to show to the class during the presentation. Afterwards we did a microscopy lab, where students could look at and compare marine sediments from different regions of the world that contain many foraminifera. They also could pick foraminifera and put them on microscopy slides to take home. The lecture and lab was summarized and explained on a handout that I gave to the students.

◆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))

I was assisted by my accompanied person, who summarized and translated the science part of my lecture \_\_\_\_\_

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

Dr. Hiroshi Kitazato

◆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。):

日本学術振興会が外国人留学生を対象に行っているサイエンス・ダイアログ・プログラムに Dr. Agnes Weiner さんの付き添いとして参加しました。理系の高校生に向けて、若手研究者が自身の研究人生を踏まえて英語でサイエンスを語る試みは素晴らしいと思います。高校生たちは年齢が近い研究者が語る自身の科学人生と取り組んでいる科学に興味深く聞いていました。このプログラムはぜひ続けていただきたいと思います。

ただ、外国人が英語でサイエンスを伝える場合に工夫が必要だと思いました。それは、高校生のヒアリング能力というよりも、科学分野のテクニカルタームを知らないために、内容を理解できていないように感じたからです。私は、Agnes さんの講演を3つ位に分けて、テクニカルタームを含めて補足的な解説を行いました。それでもうまく伝わっていないように感ずるので、もしも JSPS postdoc だけが派遣されてサポートなしで講演をした場合、内容を理解することはまず無理でしょう。必ず、受け入れ研究者クラスのシニアな科学者が同行し、やさしく解説する必要があります。

せっかく、良い取り組みだと思しますので、サポート体制の充実を、ぜひ、お願いしたいと思います。(北里 洋)