

レーダがとらえた桜島噴煙－電子ブックを利用した研究紹介－
 Sakurajima Eruption Clouds Observed by Radar -Introduction of Research Results via E-book-

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This study attempts to compile a report for a research project. Specifically, we try to use the e-book to introduce the research results of JSPS Grant-in-Aid for Scientific Research, the "General Joint Research" of the Disaster Prevention Research Institute of Kyoto University, and the "Project for Next-Generation Volcano Research and Human Resource Development" of the Ministry of Education, Culture, Sports, Science and Technology. The title of the e-book is "*Sakurajima Eruption Clouds Observed Radar*" (edited by Masayuki Maki, Kana Sano, and Hirohiko Nakamura). The e-book consists of Part 1 and Part 2. A total of twelve one researchers contribute the contents of this e-book. We introduced general topics related to volcanic plumes in Part 1 and intend for students and the public who are interested in volcanoes as readers. In Part 2, we described the results of radar analysis of past eruptions of Sakurajima. We intend for those in charge of volcanic disaster prevention and students majoring in volcanology, who are beginners in radar. Note that one of the advantages of e-books is the use of videos.

研究成果の発表にはその内容の完成度や発表の目的によりいくつかの段階がある。完成度がそれほど高くない場合には、大学の場合だと研究室のゼミ等で途中経過が発表される。ある特定の分野において、内容の完成度が高く新規性がある場合には、学会での口頭発表や学術雑誌上での発表がある。内容が普遍的な場合には教科書として出版される。このように、研究成果の公開までの経過には長い歴史があり、過去も現在も大きく変わらない。一方、発表媒体としては大きく変化している。以前は書籍や学術雑誌は紙ベースに限られていたが、現在は電子ジャーナルあるいは電子ブックとして公開される場合が出てきた。また、実験の様子などを動画で紹介できる雑誌なども登場している。

上述した研究成果の発表は学術研究に関するものであるが、もう一つの研究成果の発表として研究プロジェクトの報告書がある。例えば、科研費や受託研究などの報告書である。この場合、学術雑誌のような査読はなく、報告書の書式も自由な場合が多い。科研費では、従来のような詳細な報告書を書く必要がなく、学会などの研究発表のリストを提出すれば良くなった。委託研究の報告書の場合、発注者への報告であるために、契約内容が着実に達成されているかどうかを記載する必要がある。

本タイトルである「電子ブックを利用した研究成果の紹介」は、研究プロジェクトの成果報告をまとめるにあたって、電子ブックの利便性や効果を体験するために試みたものである。具体的にはこれまで実施してきた JSPS 科研費研究、京大防災研「一般共同研究」、文科省「次世代火山研究・人材育成プロジェクト」などの研究成果を紹介している。電子ブックの一つの利点である動画を利用している点に注目して欲しい。

電子ブック「レーダがとらえた桜島噴煙」は、Part1 と Part2 から構成される (Fig.1)。Part1 では噴煙に関する一般的な話題について説明されている。火山に興味を持つ学生や一般の人を読者として想定している。Part2 は桜島の過去に発生した噴火事例についてレーダの解析結果を紹介する。火山防災の担当者や火山学専攻の学生でレーダの初心者を対象にしている。各項目の執筆は桜島噴煙観測プラットフォーム研究会のメンバーが担当した (Fig.2)。

謝辞：出版にあたって、JSPS 科研費（課題 22K03760）、京大防災研「一般共同研究」・文科省「次世代火山研究・人材育成プロジェクト（JPJ005391）」の助成を受けた。また、DIAS（データ統合・解析システム）のデータを使用した。

<div style="background-color: #f0e68c; padding: 10px;"> <h1 style="color: #c00000; margin: 0;">SAKURAJIMA ERUPTION CLOUDS OBSERVED BY RADAR</h1> <p>Editors: Masayuki Maki, Kana Sano, and Hirohiko Nakamura</p>  <p>Authors: Study Group on the Observation Platform for Sakurajima Eruption Clouds Publisher: Research Center for Volcano Hazards Mitigation, Disaster Prevention Research Institute, Kyoto University</p> </div>	<p style="text-align: center;">Sakurajima Eruption Clouds Observed by Radar</p> <table border="0"> <tr> <td style="vertical-align: top; width: 50%;"> <p>Cover Artwork Introduction Takeo Miyagi... 1 Title 2 Prologue Masayuki Maki... 3 Index 4</p> <p>PART I Observation and Prediction of Volcanic Eruption clouds 7 Volcanic Eruptions and Eruption Clouds Haruhisa Nakamichi... 8 Photographing Volcanic Eruption Clouds Kisei Kinoshita... 10 Video Images of Volcanic Eruptions Taishi Yamada... 12 Volcano Monitoring Camera of the Japan Meteorological Agency Eiichi Sato... 14 Challenges for a Physical Oceanographer Hirohiko Nakamura... 16 Ashfall Forecast Based on Ground Deformation Monitoring Kyoko Ishii... 18 Volcanic Ash Transport And Dispersion Modeling Kosei Takishita... 20 Disasters Caused by Volcanic Ash Masato Iguchi... 22 Weather Radar Observations of Eruption Clouds Masayuki Maki... 24 X-band Marine Radar Masayuki Maki, Yasuo Ozawa, Yasushi Fujiyoshi... 26 Mobile Observations Using Marine Radar Takaaki Nishi... 28 SVO-XMP Radar Masayuki Maki, Haruhisa Nakamichi... 30 ANT3D Takehiko Kobori... 32 VASH Kana Sano, Masayuki Maki... 34 Platform for Monitoring Sakurajima Volcanic Eruption Clouds Masayuki Maki, Haruhisa Nakamichi, Hirohiko Nakamura... 36</p> </td> <td style="vertical-align: top; width: 50%;"> <p>4</p> <p>PART II Notable Eruptions of Sakurajima volcano 39 13-0627 Something was happening outside when I opened the curtains Masayuki Maki, Ikuko Suzuki and Yura Kim... 40 13-0916 Volcanic Eruption Cloud? Masayuki Maki... 44 14-0163 Cloud Radar Masayuki Maki, Takeshi Maesaka... 46 18-0021 KURAD Masayuki Maki, Masato Masuya... 48 18-0227 Continuous Eruptions Masayuki Maki... 50 18-0277 Ashfall in Kagoshima Masayuki Maki... 52 18-0999 Experimental Release of Particles from the Air Masayuki Maki and Hirohiko Tokushima... 54 19-0090 Tephra Downfall Masayuki Maki and Naoko Iino... 56 19-9999 Fireworks Masayuki Maki, Takaaki Nishi, Hidehiko Tokushima and Kazuhiko Kaiga... 58 20-0368 Mud Rain Masayuki Maki, Masato Iguchi and Haruhisa Nakamichi... 60 22-0142 Volcanic Pisolite Formation Masayuki Maki and Takaaki Nishi... 62 22-0147 Multi-Radar Sensing of Continuous Eruptions Masayuki Maki and Haruhisa Nakamichi... 64 Epilogue Masayuki Maki... 69 Author's Information 70 References 72</p> </td> </tr> </table>	<p>Cover Artwork Introduction Takeo Miyagi... 1 Title 2 Prologue Masayuki Maki... 3 Index 4</p> <p>PART I Observation and Prediction of Volcanic Eruption clouds 7 Volcanic Eruptions and Eruption Clouds Haruhisa Nakamichi... 8 Photographing Volcanic Eruption Clouds Kisei Kinoshita... 10 Video Images of Volcanic Eruptions Taishi Yamada... 12 Volcano Monitoring Camera of the Japan Meteorological Agency Eiichi Sato... 14 Challenges for a Physical Oceanographer Hirohiko Nakamura... 16 Ashfall Forecast Based on Ground Deformation Monitoring Kyoko Ishii... 18 Volcanic Ash Transport And Dispersion Modeling Kosei Takishita... 20 Disasters Caused by Volcanic Ash Masato Iguchi... 22 Weather Radar Observations of Eruption Clouds Masayuki Maki... 24 X-band Marine Radar Masayuki Maki, Yasuo Ozawa, Yasushi Fujiyoshi... 26 Mobile Observations Using Marine Radar Takaaki Nishi... 28 SVO-XMP Radar Masayuki Maki, Haruhisa Nakamichi... 30 ANT3D Takehiko Kobori... 32 VASH Kana Sano, Masayuki Maki... 34 Platform for Monitoring Sakurajima Volcanic Eruption Clouds Masayuki Maki, Haruhisa Nakamichi, Hirohiko Nakamura... 36</p>	<p>4</p> <p>PART II Notable Eruptions of Sakurajima volcano 39 13-0627 Something was happening outside when I opened the curtains Masayuki Maki, Ikuko Suzuki and Yura Kim... 40 13-0916 Volcanic Eruption Cloud? Masayuki Maki... 44 14-0163 Cloud Radar Masayuki Maki, Takeshi Maesaka... 46 18-0021 KURAD Masayuki Maki, Masato Masuya... 48 18-0227 Continuous Eruptions Masayuki Maki... 50 18-0277 Ashfall in Kagoshima Masayuki Maki... 52 18-0999 Experimental Release of Particles from the Air Masayuki Maki and Hirohiko Tokushima... 54 19-0090 Tephra Downfall Masayuki Maki and Naoko Iino... 56 19-9999 Fireworks Masayuki Maki, Takaaki Nishi, Hidehiko Tokushima and Kazuhiko Kaiga... 58 20-0368 Mud Rain Masayuki Maki, Masato Iguchi and Haruhisa Nakamichi... 60 22-0142 Volcanic Pisolite Formation Masayuki Maki and Takaaki Nishi... 62 22-0147 Multi-Radar Sensing of Continuous Eruptions Masayuki Maki and Haruhisa Nakamichi... 64 Epilogue Masayuki Maki... 69 Author's Information 70 References 72</p>
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Fig. 1 PDF version of the e-book “SAKURAJIMA ERUPTION CLOUDS OBSERVED BY RADAR”. Cover page (left) and Table of contents (middle and right).

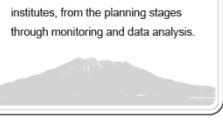
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Study Group on the Observation Platform for Sakurajima Eruption Clouds Our research group coordinates observational research on Sakurajima volcano eruption clouds conducted by various universities and research institutes, from the planning stages through monitoring and data analysis. 	

Fig.2 Members of “Study Group on the Observation Platform for Sakurajima Eruption Clouds”.