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Astronomy as a Possible Tool of Community Building and Tourist Resources in the Sub-Tropical Isolated Isles - Case Study in Okinawa, Japan

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Abstract. Astronomy communication is of great use for community building in depopulated isolated island regions and for resources for tourism in sub-tropical districts without light pollutions. This article reports two case studies of these issues in Okinawa, southwest of Japan Islands.

1. Introduction

Okinawa Prefecture is located in the southernmost part in Japanese Archipelago and consists of 160 islands, 39 of which are inhabited isolated islands.

In this article, the authors will introduce recently implemented case studies that communicating astronomy can be of great use for the community building in the depopulated isolated islands and resources for the tourists visiting Okinawa.

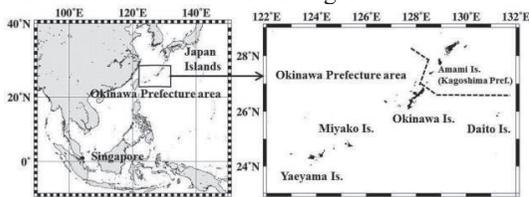


Fig. 1. Index map of Okinawa and eastern Asia.

2. Case Study 1: Astronomy class in the community building project

The population is gradually increases in the whole Okinawa Prefecture (+2.9%, 2010-2015) although that of the whole Japan decreases, according to the Japanese Government's population statistics survey in 2015 [1]. However, the population decreases drastically in the northern area of Okinawa Island and the isolated islands. Some islands are affected by more than 10% decrease of population during the past 5 years (between 2010 and 2015) [1].

In these islands 9th graders should go out of their islands for further education to enter the high school. The problem is that these young islanders never come back home after graduation. This is because there are no attractive jobs that young people want to occupy in these small isolated islands.

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After young people leave their island, population of elders consequently increases. Then the industry characteristic of these islands (agriculture, fisheries, production of food processed from vegetables, excellent resources for visiting tourists, etc.) may decline. These islands may be affected by such a downward spiral unless young people come back to these islands through an attractive community building.

However, since Okinawa is located in the southernmost part of Japan, most stars can be observed through one year in Japan. Especially, the residents can observe the spectacular southern starry sky with no light pollution at night in these depopulated areas. If the residents notice that their community has such a valuable "treasure" through a public astronomy class, they will recognise the attractiveness in their own town, which may prompt the future community building by themselves.

On the other hand, the isolated islands in Okinawa are recently keen to promote staying at a private house under the control of the local tourist bureau supported by the local government (towns, villages). Many high school students visit these islands and stay at officially certified private houses during their school excursion. The islands are full of young people and look vigorous throughout a year.

"The Stardust", students' astronomical association in University of the Ryukyus, made a project plan including astronomy class and stargazing workshop by inviting schoolkids, their parents, host families and high school students during their school excursion, and the residents at Ié Island and Kumé Island, both of which are highly depopulated isolated islands, and applied to the university's in-house project which was implemented under the universities' COC (Centre Of Community) programme funded by Japanese government. Their proposal was successfully accepted and they could hold "Okinawa Space Class" in these islands in 2017.

This class consisted of two parts: Part 1 classroom lecture on the stars and the universe, folk tales about the stars, how to use a planisphere, how



to use an astronomical telescope, etc., and Part 2 outdoor observation workshop.

The class on 7th October in Ié Island was mainly for the public, high school students from outside Okinawa and their host families. The class on 8th was mainly for elementary schoolkids with their parents. The class on 4th November in Kumé Island was for all islanders including schoolkids, their parents, host families and adults. The result of evaluation for the class by the attendees in Kumé Island was good and the authors regarded the project as successful.

3. Case Study 2: The possibility of using the starry sky in Okinawa for the tourism

University of the Ryukyus sends maximum 6 students every year to one of the ASEAN countries for short-term job training. The purpose of the programme is that the university inspires the students to get the mind of cosmopolitanism and makes them consider to look for their jobs in foreign countries through the experiences of a short-term job training and personal exchange with the business persons and the same generation (students studying Japanese languages etc.). In 2016, 5 students visited Singapore through this programme. During their stay, they visited the Okinawa Prefecture Office in Singapore (liaison between Okinawa and Singapore), Vivid Creations Pte Ltd. (Promotion event coordination, Marketing, for job training of proposing a new idea of Okinawan tour), Nanyang Technological University (for cultural and linguistic exchange among the students), etc.

Before departure to Singapore, they were given from Vivid Ltd. the task “Propose an idea of new Okinawan tour plan for Singaporeans”. The number of the tourists visiting Okinawa increases drastically and counts about 9.4 million (2.5 million from foreign countries) in 2017 [2]. The students at first discussed through SWOT analysis the factors which affect tourism in Okinawa. After the field works during their stay, they found that Singapore is full of brightness at night, cloudy in many days (located under the Intertropical Convergence Zone), always foggy due to haze. Then they realised that Singaporeans have very little chance to watch the starry sky and that the starry sky in the suburbs of Okinawa could be resources for tourists from Singapore. They spent 1 hour at a hawker (food court) in downtown during lunch time on 08 September 2016 to interview to 100 Singaporean business persons, asking whether or not they wanted to visit Okinawa to watch the beautiful starry sky, by showing a smartphone with a photo of the Milky Way in Okinawa. As a result, 71 persons (71%)

answered in the affirmative. Finally they made sure that the starry sky must be excellent resources for tourists, especially for Singaporeans, since star watching is almost hopeless in Singapore.

In the late afternoon on this day the students presented this issue together with the background and the result of the SWOT analysis about the tourism in Okinawa to the expert of the promotion event coordination of Vivid Ltd. Then finally they proposed several new concepts of Okinawan tour plan for Singaporeans. These include pre-existing resources such as coral reef, white sandy beach, deep ocean water spa, Okinawan healthy food, shopping etc. They insisted that the Okinawan tourism would be more attractive if these pre-existing resources were combined with new resources, starry night sky watching which is very familiar in the suburbs of Okinawa and unfamiliar to the Singaporeans. They added that outdoor wedding photos under the starry sky would also be attractive and that promotion event for Okinawan tour by use of the planetarium programme would also be effective.

4. Conclusion

The “Star Guide” license system is now completed in Japan [3]. The license holders can work as science communicators, volunteers for stargazing meetings in the local schools and during the night-time tour programmes. Their talk on the universe, stars, planets, constellations can be added values to the meeting. The authors would like to expand this action to the whole area on Okinawa Prefecture. Residents living and working in the light-polluted areas [4] in the eastern and southeastern Asian countries may wish to travel to watch the starry sky. The number of the tourists visiting Okinawa may increase from this time forward. Education programmes for English-speaking and Chinese-speaking star guide training may be required very soon.

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