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LOCAL REVITALIZATION PROJECT TO TURN MY HOMETOWN, KOMONO TOWN, INTO "SPACE TOWN"

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Abstract

In Japan, the concentration of population in urban areas and the declining birthrate and aging population have led to the decline of rural areas. To solve this problem, I have planned and started to put into practice a space project to revitalize the region by turning my hometown, Komono Town, into "space town." First, we have initiated activities to introduce space education programs to schools in order to get parents and children living in Komono Town interested in private space travel and the private space business. Specifically, we visit the mayor of the municipality and the board of education, and hold lectures by private astronauts at elementary and junior high schools to implement the program to give children a dream. In addition to children, we also offer lectures on commercial space travel for elderly people living in Komono Town. Nearly 25 percent of the population of Komono Town is elderly. By having a goal of space travel, the elderly will find a purpose in life, which will enhance their vitality and revitalize the community. Furthermore, we will make effective use of vacant houses and land owned by the elderly by converting them into places to practice private space education. We will also attract tourists from other regions by offering space tours to simulate space travel with private astronauts using a private spacecraft education and training simulator, which was created by converting a camping trailer.

In this paper, I report the results of my examination of the project to revitalize my hometown, Komono Town, as a rural area by turning it into "space town," as well as the issues involved in the implementation of the project.

Keywords: Komono-cho, Revitalization of a local area, SKIP

Nomenclature

Komono-cho: A local town in Mie Prefecture in Japan

Acronyms/Abbreviations

SKIP: Star Kids International Program

1. Introduction

In recent years, the population of Japan has been declining as young people move to urban areas, leading to the decline of rural areas. My hometown, Komono Town, is experiencing a similar decline in population and an increase in the number of vacant houses and lots. My online tutoring school, SKIP (Star Kids International Program), has a private space education program as part of its classes.

Last year, in my 2022 paper, I presented "A Private Space Education Program to Alleviate the Shortage of Teachers on Commercial Space in Japanese Schools".

Through this private space education program, we plan to revitalize our hometown, Komono Town, as a "space town".

Specifically, the program plans to (1) hold lectures by commercial astronauts at schools, (2) offer courses on commercial space travel for the elderly, (3) use vacant land as a place to practice commercial space education, and (4) convert a camping trailer and use it as a simulator for commercial spacecraft education and training.

2. Lectures by commercial astronauts

2.1 Outline of Lecture

In order to encourage children living in Komono Town to have dreams about space, we are planning to visit the mayor of my municipality and the board of education to give lectures at local elementary and

junior high schools, which will be held in the winter of 2023.

My municipality has five elementary schools and two junior high schools. The total number of students will be approximately 4,000.

By holding lectures at schools, we are able to encourage many children to have dreams and hopes for commercial space travel at the same time.

After the success of the lecture in one municipality, we will realize similar lectures at schools in neighboring municipalities. In this way, we will be able to give a great number of children dreams and hopes for civilian space travel.



Fig. 1 Director of Education of Komono Town (Middle)

2.2 Problem

According to the post-program questionnaire survey, the program has greatly stimulated the children's curiosity about commercial space travel.

However, a survey of the children's behavior after the program showed that the curiosity aroused by the program disappeared within about a week, as they were busy with daily homework and tests.

2.3 Solution

Create an online group for participants of space education programs and lectures using social networking services, etc., and regularly communicate with their peers who are interested in civilian space travel to maintain their curiosity about space. 3.

3. Offer a course on commercial space travel for the elderly.

3.1 Outline of the course

Approximately 25% of Komono Town's population is elderly (65 years old or older).

Therefore, it is essential to offer courses for the elderly in order to revitalize the local community.

Therefore, we will hold a course for the elderly to learn about cutting-edge commercial space travel at a local community center.

First, as a financial planner, I will provide advice on the financial aspects necessary for private space travel, including asset planning to efficiently accumulate funds.

As an administrative paralegal, I will also provide legal advice on how to give your grandchildren private space travel as a gift during their lifetime, or how to leave assets as a will.



Fig. 2 Space Lecture for the Elderly in Komono

3.2 Problem

Elderly people living in rural areas think that commercial space travel is something that has nothing to do with them. Therefore, there is a problem that people do not easily gather even when notifying them of course offerings.

3.3 Solution

Regarding the content in the first half of the lectures on "how to make a will," "how to effectively use vacant houses and land," "inheritance of farmland," etc., will be given to solve problems that local elderly people are currently facing. Then, in the second half of the course, we will attract the elderly by giving a talk about private space travel.

4. Use vacant land as a practice site for private space education

4.1 Overview of the use of vacant land

In rural areas of Japan, the population is decreasing as young people move to urban areas, and the number of

vacant houses and lots is increasing. Therefore, we will revitalize rural areas by making effective use of these vacant houses and land.

Specifically, we are planning an event where parents and children can experience the moon's surface by assuming that vacant lots where stones have been abandoned are craters on the moon. This will bring people from the urban areas to the rural areas.



Fig.3 Candidate sites for lunar experience events

4.2 Problem

Owners of vacant land are not interested in private space travel and do not agree to use the land as a site for private space education practices.

The problem is that the owner of the vacant land is unknown or may have moved to a distant place.

4.3 Solution

Have the owners attend the private space travel course described in Section 2 above and combine it with a course on solving the problems they are facing, such as "taxation measures for vacant land," to gain their understanding.

If the owner is unknown, cooperation from the government should be sought.

5. Use of Private Spacecraft Training Simulators converted from camping trailers and dome houses

5.1 Overview of Education Using the Private Spacecraft Education and Training Simulator

The ASTRAX civilian spacecraft education and training simulator, which was created by converting a camping trailer and a dome house, will be installed in a vacant lot in Komono Town.

Since these simulators are mobile, hands-on sessions will also be held at elementary and junior high schools in the town.

By holding a private spacecraft education and training simulator hands-on learning session at schools where lectures by commercial astronauts were held as described in Section 1 above, students can have a realistic experience of commercial space travel.



Fig. 4 ASTRAX Commercial Spacecraft Education and Training Simulators

5.2 Problem

Administrative permission is required to bring a camping trailer or dome house onto public school grounds, but the administrative process can be very lengthy.

In addition, if the installation is on vacant land, the same issues as in Section 3-2 above apply.

5.3 Solution

Japanese administrative agencies are conservative and slow to make progress on first-time projects, but once a precedent is set, the second time is quicker. Also, if you can build a relationship of trust with the government agency, the conversation can proceed relatively quickly. Therefore, by ensuring the success of the first project, we aim to build trust with the government agencies and conduct the next project as soon as possible.

6. Conclusion

In order to implement a project to revitalize our hometown, Komono Town, by turning it into a "space town" to revitalize the region, it is essential to have the understanding and cooperation of the local government and residents as a prerequisite for this project.

At present, however, the understanding and cooperation for space travel are insufficient. The reason for this may be the lack of information and bias toward

private-sector space travel. Therefore, first of all, it is necessary to continue to actively provide information to government officials and key members of the local community.

In addition, most residents believe that space is not relevant to their lives. Therefore, in order to encourage them to participate in space events, it is necessary to make them feel that their participation will benefit their daily lives. Specifically, participation in space education events improves motivation to learn science and English, and the effective use of vacant land as a space education site provides tax benefits.

Through these activities, the project will be facilitated by stimulating interest in private space travel and gaining the understanding of the government and residents for the space project.

References

Reference to a conference/congress paper:

- [1] T. Yamazaki, 民間商業宇宙飛行士と新規宇宙ビジネスの展開について, 3D18, 50th Space Science and Technology Conference, Kita Kyushu, Japan, 2006, 8-10 November.
- [2] T. Yamazaki, OVERVIEW OF ASTRAX SPACE SERVICES INCLUDING OVER 50 SPACE BUSINESSES, ISDC-2018-Many Roads to Space, International Space Development Conference 2018, Los Angeles, USA, 2018, 24-27 May.
- [3] T. Yamazaki, ASTRAX ZERO GRAVITY FLIGHT SERVICES IN JAPAN, ISDC-2018-Many Roads to Space, International Space Development Conference 2018, Los Angeles, USA, 2018, 24-27 May.
- [4] T. Yamazaki, ASTRAX LUNAR CITY DEVELOPMENT PROJECT, ISDC-2019-Many Roads to Space, International Space Development Conference 2019, Washington D.C., USA, 2019, 5-9 June.
- [5] T. Yamazaki, ASTRAX SPACE SERVICES PLATFORM BY USING BLOCKCHAIN TECHNOLOGY, ISDC-2019-Many Roads to Space, International Space Development Conference 2019, Washington D.C., USA, 2019, 5-9 June.
- [6] Taichi Yamazaki, Buhe Heshige, Yoshihide Nagase, ASTRAX UNIVERSAL SERVICE PLATFORM BY USING BLOCKCHAIN TECHNOLOGY, IAC-19- E6.5-GST.1.6, 70th International Astronautical Congress (IAC), Washington D.C., United States, 2019, 21-25 October.
- [7] Taichi Yamazaki, MISSION CONTROL CENTER TO SUPPORT COMMERCIAL SPACE MISSIONS

AND PASSENGER'S ACTIVITIES INSIDE OF THE CABIN, IAC-19-B3.2.3, 70th International Astronautical Congress (IAC), Washington D.C., United States, 2019, 21-25 October.

[8] Taichi Yamazaki, ASTRAX ACADEMY AND SPACE BUSINESS AND SPACE FLIGHT SUPPORT EDUCATIONAL SYSTEM, Next-Generation Suborbital Researchers Conference (NSRC), Broomfield, CO, United States, 2020, 2-4 March.

[9] Taichi Yamazaki, MISSION SUPPORT CONTROL CENTER AND SUBORBITAL SPACECRAFT SIMULATOR TO SUPPORT COMMERCIAL SPACE MISSIONS AND CUSTOMER ACTIVITIES, Next-Generation Suborbital Researchers Conference (NSRC), Broomfield, CO, United States, 2020, 2-4 March.

[10] Taichi Yamazaki, ZERO-G-AUT AND MISSION COMMANDER TO SUPPORT COMMERCIAL SPACE MISSIONS AND CUSTOMER ACTIVITIES INSIDE CABIN, Next-Generation Suborbital Researchers Conference (NSRC), Broomfield, CO, United States, 2020, 2-4 March.

[11] Taichi Yamazaki, "SPACE SCOOTER": SPACE MOBILITY SYSTEM USED IN SPACE HOTELS AND SPACE STATIONS, IAC-20-B3.7.17, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[12] Taichi Yamazaki, ASTRAX LUNAR CITY DEVELOPMENT PROJECT 2020, IAC-20-D4.2.11, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[13] Taichi Yamazaki, ASTRAX LUNAR CITY ECONOMIC SYSTEM BY USING BLOCKCHAIN TECHNOLOGY, IAC-20-E6.2.9, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[14] Taichi Yamazaki, ASTRAX SPACE SERVICE CATALOG SYSTEM FOR SPACE TOURISM, IAC-20-B3.2.12, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[15] Taichi Yamazaki, ASTRAX UNIVERSAL SERVICE PLATFORM BY USING BLOCKCHAIN TECHNOLOGY, IAC-20-D4.1.20, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[16] Taichi Yamazaki, EXPERIENCE AND LESSONS LEARNED FROM THE COVID-19 PROBLEM IN JAPAN AND APPLICATION TO SPACE TRAVEL, IAC-20-A1.3.15, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[17] Taichi Yamazaki, ZERO-G-AUT AND MISSION COMMANDER TO SUPPORT COMMERCIAL SPACE MISSION AND CUSTOMER ACTIVITIES INSIDE CABIN, IAC-20-

B3.2.13, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.
[18] Chieko Takahashi, Yuko Kirihara, Creating a new business of Space Flight Attendant service & SFA Academy, IAC-20-B3.2.10, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[19] Taiko Kawakami, Taichi Yamazaki, THE IMPORTANCE OF KIMONO IN SPACE, IAC-20-E1.9.2, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[20] Taiko Kawakami, Taichi Yamazaki, WHAT WOMEN NEED FOR SPACE TRAVEL, IAC-20-E3.2.9, 71st International Astronautical Congress (IAC), The CyberSpace Edition, 2020, 12-14 October.

[21] Taichi Yamazaki, Taiko Kawakami, ASTRAX LUNAR CITY DEVELOPMENT PROJECT 2021, IAC-21-D3.1.6, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[22] Taichi Yamazaki, COMMERCIAL SPACE MISSION SUPPORT CONTROL CENTER AND SUBORBITAL SPACECRAFT SIMULATOR TO SUPPORT COMMERCIAL SPACE MISSIONS AND PASSENGERS ACTIVITIES IN SPACE, IAC-21-B6.2.12, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[23] Taichi Yamazaki, INITIATIVE OF DEVELOPMENT OF THE SOLAR SYSTEM ECONOMIC BLOC BY USING BLOCKCHAIN TECHNOLOGY, IAC-21-D4.1.11, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[24] Taichi Yamazaki, Mika Islam, SPACE FASHION AND SPACE CULTURE IN THE AGE OF SPACE TRAVEL AND THE POSSIBILITIES OF "SPACE HAGOROMO", IAC-21-E5.3.6, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[25] Taichi Yamazaki, Taiko Kawakami, Keiichi Iwasaki, Akifumi Mimura, MAKING ASTRAX ACADEMY ONLINE AND MULTILINGUAL, IAC-21-E1.7.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[26] Taichi Yamazaki, POTENTIAL FUTURE PLAN OF SPACE IZAKAYA AS A PLACE TO CREATE NEW PRIVATE SPACE BUSINESS, IAC-21-E1.9.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[27] Taichi Yamazaki, FOSTERING UNIVERSAL HUMAN RESOURCES AND SUPER NEWTYPES FOR THE SPACE AGE, IAC-21-E1.9.8, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[28] Taichi Yamazaki, Shunsuke Chiba, DEMAND AND SUPPLY MATCHING BY THE ASTRAX LUNAR CITY BUSINESS COMMUNITY AND RESIDENCE CLUB, IAC-21-D3.3.3, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[29] Taichi Yamazaki, OUTLINE OF ASTRAX PRIVATE SPACE BUSINESS CREATION EDUCATION AND TRAINING CENTER, IAC-21-B3.2.5, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[30] Taichi Yamazaki, PROTOTYPE PLANS FOR VARIOUS COMMERCIAL SPACECRAFT TRAINING SIMULATORS, IAC-21-B3.2.2, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[31] Taichi Yamazaki, Yuki Yamazaki, EXPERIMENTS ON COLORING SOAP BUBBLES UNDER MICROGRAVITY, IAC-21-A2.6.5, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[32] Taichi Yamazaki, STUDY OF THE SELECTION OF LOCATION FOR COMMERCIAL SPACEPORTS IN JAPAN, IAC-21-D6.3.8, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[33] Taichi Yamazaki, SPACE RADIATION SHIELDING BY WATER DOME IN ASTRAX LUNAR CITY ON THE MOON, IAC-21-A1.5.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[34] Taichi Yamazaki, Hiroki Nakaegawa, INTRODUCTION OF A PRACTICAL EXAMPLE OF ASTRAX LUNAR CITY MAPPING WITH MINECRAFT AND ITS LINKAGE TO ECONOMIC ACTIVITIES ON EARTH, IAC-21-D4.2.6, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[35] Taichi Yamazaki, Hiroki Nakaegawa, DEVELOPMENT OF A CIVILIAN SPACECRAFT INTERIOR SIMULATOR USING MINECRAFT, IAC-21-B6.3.11, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[36] Taichi Yamazaki, PROPOSAL TO ADD A SPACE ECONOMICS SUBCOMMITTEE TO THE UN OFFICE FOR OUTER SPACE AFFAIRS' COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE (COPUOS IN UNOOSA), IAC-21-E3.4.7, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[37] Ayako Kurono, Haruto Kurono, Taichi Yamazaki, THE GENDER GAP AND ITS IMPACT IN MANGA, ANIME AND OTHER SPACE CREATIONS, IAC-

21-E5.3.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[38] Ayako Kurono, Haruto Kurono, Taichi Yamazaki, CAREER DESIGN IN SPACE - FROM CHALLENGED TO CHALLENGING, IAC-21-B3.9-GTS.2.1, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[39] Haruto Kurono, Ayako Kurono, Taichi Yamazaki, THE EFFECTS OF USING MINECRAFT TO TEACH CHILDREN ABOUT SPACE, IAC-21-E1.8.2, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[40] Tomoko Imaizumi, Taichi Yamazaki, MAINTAINING THE HEALTH OF PILOTS AND CREW, IAC-21-D6.3.4, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[41] Taichi Yamazaki, Mami Oka, CONSIDERATION ON THE CREATION OF A CHICKEN EGG MARKET AT THE MOON VILLAGE, IAC-21-D4.2.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[42] Chieko Takahashi, Yuko Kirihara, Taichi Yamazaki, CONSIDERATION OF THE FUTURE PROSPECTS OF THE SPACE FLIGHT ATTENDANT(SFA) PROFESSION WITH THE EXPANSION OF SPACE TRAVEL MARKETING, IAC-21-B3.9-GTS.2.10, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[43] Taiko Kawakami, Taichi Yamazaki, PROBLEMS AND SOLUTIONS THAT ARE PREVENTING MORE WOMEN FROM BECOMING SPACE TOURISTS, IAC-21-B3.2.3, 72nd International Astronautical Congress (IAC), Dubai, United Arab Emirates, 2021, 25-29 October.

[44] Hayaki Tsuji, Taichi Yamazaki, Satoshi Takamura, Yoichi Sugiura, PEACE THOUGHT AND SOCIO-ECONOMY FOR THE SPACE AGE USING SATELLITES, IAC-20-E5.5.5, 71st International Astronautical Congress (IAC) – The CyberSpace Edition, 2020, 12-14 October.

[45] Taichi Yamazaki, ADVANCED SPACE SERVICE ACCESS APPLICATION TOOL: ASTRAX UNIVERSAL USER INTERFACE (U2U), IAC-20-B3.1.11, 71st International Astronautical Congress (IAC) – The CyberSpace Edition, 2020, 12-14 October.

[46] Taichi Yamazaki, Taiko Kawakami, DEVELOPMENT OF A TERIPPER FOR INTRA-SPACECRAFT TRANSPORTATION, IAC-

22-A1.3.17, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[47] Taichi Yamazaki, Taiko Kawakami, POSSIBILITY OF ZERO-GRAVITY FLIGHT SERVICE BY MRJ (MITSUBISHI REGIONAL JET), IAC-22-A2.IPB.1, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[48] Taichi Yamazaki, Taiko Kawakami, DEVELOPMENT OF ASTRAX COMMERCIAL SPACECRAFT EDUCATION AND TRAINING SIMULATOR, IAC-22-B3.IPB.4, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[49] Taichi Yamazaki, Taiko Kawakami, DEVELOPMENT OF SPACE SHOWER, IAC-22-B3.3.5, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[50] Taichi Yamazaki, Taiko Kawakami, PRODUCTION OF SPACE SUITS AND REPLICAS FOR SPACE TRAVEL, IAC-22-B3.9-GTS.2.1, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[51] Taichi Yamazaki, Taiko Kawakami, ADVANCED SPACE SERVICE ACCESS APPLICATION TOOL “ASTRAX UNIVERSAL USER INTERFACE (ASTRAX U2U)”, IAC-22-B5.IP.7, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[52] Taichi Yamazaki, Taiko Kawakami, ASTRAX SOLAR SYSTEM ECONOMIC BLOC CONCEPT USING NFT AND METAVERSE TECHNOLOGIES, IAC-22-D4.1.10, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[53] Taichi Yamazaki, Taiko Kawakami, DEVELOPMENT OF A REAL-LIFE (ANALOG) ASTRAX LUNAR CITY CONSTRUCTION PROJECT IN JAPAN, IAC-22-D4.2.6, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[54] Taichi Yamazaki, Taiko Kawakami, MULTILINGUALIZATION OF ASTRAX ACADEMY, IAC-22-E1.7.10, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[55] Taichi Yamazaki, Taiko Kawakami, POSSIBILITY OF ZERO-GRAVITY FLIGHT AND SPACE FLIGHT BY PEOPLE WITH DISABILITIES, IAC-22-E1.9.18, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

[56] Taichi Yamazaki, Kentaro Chimura, Taiko Kawakami, DEVELOPMENT OF SPACE TOILET “SPACE BENKING” IN JAPAN, IAC-22-E5.IP.10, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.

- [57] Taichi Yamazaki, Taiko Kawakami, DISASTER PREVENTION AND EVACUATION TECHNOLOGIES ON EARTH AND THEIR APPLICATION TO SPACE TRAVEL, IAC-22-E5.4.9, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [58] Mika Islam, Taichi Yamazaki, CLEANING METHODS FOR REUSING CLOTHES IN SPACE, IAC-22-B3.7.7, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [59] Mika Islam, Taichi Yamazaki, HOW TO GO TO SPACE WITH DIFFERENT HAIRSTYLES, IAC-22-E1.9.7, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [60] Yuko Kirihara, Airi Negisawa, Chieko Takahashi, Taichi Yamazaki, Cocoro Tamura, RESEARCH ON PSYCHOLOGICAL CHANGES AND GROWTH OF CHILDREN THROUGH EDUCATION RELATED TO COMMERCIAL SPACE BUSINESS, IAC-22-E1.IPB.9, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [61] Ayako Kurono, Taichi Yamazaki, WHAT DO THEY NEED FOR A SPACE MUSEUM?, IAC-22-E5.5.8, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [62] Haruto Kurono, Taichi Yamazaki, ESTABLISHMENT AND DEVELOPMENT OF A LUNAR COMMUNITY AND ACTIVITY SPACE BY CHILDREN FOR CHILDREN, IAC-22-D4.2.10, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [63] Akifumi Mimura, Taichi Yamazaki, VIDEO EDITING SERVICES FOR SPACE TRAVELLERS, IAC-22-B3.2.6, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [64] Akifumi Mimura, Taichi Yamazaki, TECHNOLOGIES ON A TRANSPARENT RESTROOM COULD BE USED FOR LUNAR HABITATS, IAC-22-E5.1.8, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [65] Taiko Kawakami, Taichi Yamazaki, ASTRAX LUNAR CITY PROJECT 2022, IAC-22-D3.1.12, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [66] Chikako Murayama, Taichi Yamazaki, THE NEED FOR A SPACE VERSION OF HAND SIGNALS, A COMMUNICATION TOOL FOR SPACE TRAVELERS, IAC-22-B3.2.1, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [67] Chikako Murayama, Taichi Yamazaki, Taiko Kawakami, PHOTOGRAPHY SERVICES AND TECHNIQUES REQUIRED FOR SPACE TRAVEL, IAC-22-D6.1.8, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [68] Chikako Murayama, Taichi Yamazaki, ON IMAGES OF THE UNIVERSE INFLUENCED BY MANGA AND ANIME, IAC-22-E1.9.3, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [69] Hikaru Otsuka, Taichi Yamazaki, A SPACE EDUCATION PROGRAM TO SOLVE THE SHORTAGE OF COMMERCIAL SPACE TEACHERS IN JAPANESE SCHOOLS, IAC-22-E1.7.8, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [70] Yasuko Fukushima, Taichi Yamazaki, HOW TO CAPTURE THE COSMIC DIVERSITY THAT IS COMING, IAC-22-E1.9.22, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [71] Chieko Takahashi, Taichi Yamazaki, THE ROLE OF SPACE FLIGHT ATTENDANTS IN LARGE, LONG-DURATION SPACE TRAVEL, IAC-22-B3.2.10, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [72] Kiyomi Shigematsu, Taichi Yamazaki, PROPOSAL FOR A BUSINESS MODEL THAT ENABLES AND ENCOURAGES OLDER ADULTS TO TRAVEL TO SPACE, IAC-22-E5.IP.22, 73rd International Astronautical Congress (IAC), Paris, France, 2022, 18-22 September.
- [73] Taichi Yamazaki, Taiko Kawakami, Fumihiro Oiwa, DEVELOPMENT OF ASTRAX ZERO GRAVITY AIRCRAFT EDUCATION AND TRAINING SIMULATOR, IAC-23-A2.5.9, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.
- [74] Taichi Yamazaki, Taiko Kawakami, DEVELOPING TECHNOLOGY FOR DRINKING CHILLED CARBONATED BEVERAGES IN SPACE, IAC-23-B5.1.11, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October."
- [75] Taichi Yamazaki, Taiko Kawakami, Hiroki Nakaegawa, DEVELOPMENT OF COMMERCIAL SPACECRAFT EDUCATION AND TRAINING SIMULATOR USING THE METAVERSE, IAC-23-D1.1.6, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.
- [76] Taichi Yamazaki, Taiko Kawakami, CONSTRUCTION PLAN OF ASTRAX LUNAR CITY SIMULATION FACILITY IN JAPAN, IAC-23-D4.2.9, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.
- [77] Taichi Yamazaki, Taiko Kawakami, Kentaro Chimura, DEVELOPMENT OF THE SPACE TOILET CALLED "SPACE BENKING" 2023, IAC-23-E5.4.3,

74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[78] Taichi Yamazaki, Taiko Kawakami, INTRODUCTION OF COMMERCIAL SPACE R&D CENTER "ASTRAX LAB" IN JAPAN, IAC-23-B3.IPB.5, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[79] Taichi Yamazaki, Taiko Kawakami, ANALYSIS OF PASSENGERS' NEEDS AND DEMANDS OF ASTRAX ZERO GRAVITY SERVICES AND APPLICATION FOR SPACE TRAVEL SERVICES, IAC-23-B3.IP.1, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[80] Taiko Kawakami, Taichi Yamazaki, THE SENSES AND CREATIVITY THAT CAN BE ACHIEVED BY BRINGING ENTERTAINMENT IN SPACE, IAC-23-E1.IP.22, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[81] Taiko Kawakami, Taichi Yamazaki, TECHNOLOGY, PROBLEMS AND SOLUTIONS FOR DRINKING ALCOHOL IN SPACE, IAC-23-E1.9.2, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[82] Taiko Kawakami, Taichi Yamazaki, TECHNOLOGY, PROBLEMS, AND SOLUTIONS FOR SPACE TRAVEL MEALS AS REPRESENTED BY "YAKITORI", GRILLED CHICKEN, IAC-23-B5.IP.2, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October."

[83] Taiko Kawakami, Taichi Yamazaki, THE POSSIBILITY OF DEVELOPING JAPANESE CULTURE THROUGH "NATTO" IN SPACE, IAC-23-E5.IP.17, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[84] Hikaru Otsuka, Taichi Yamazaki, LOCAL REVITALIZATION PROJECT TO TURN MY HOMETOWN, KOMONO TOWN, INTO "SPACE TOWN", IAC-23-E1.9.3, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[85] Hikaru Otsuka, Taichi Yamazaki, METHODS AND PRACTICES FOR INTRODUCING PRIVATE SPACE EDUCATION PROGRAMS INTO

JAPANESE SCHOOLS, IAC-23-E1.2.8, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[86] Masahiko Takehara, Taichi Yamazaki, DEVELOPMENT OF A "LUNAR PATTERN OKONOMIYAKI" BAKING METHOD TO HELP PROMOTE TOURISM IN A LUNAR CITY, IAC-23-D4.LBA.1, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[87] Masahiko Takehara, Taichi Yamazaki, SPACE EDUCATION AND NUTRITION EDUCATION USING "SOLAR PLANET TAKOYAKI, IAC-23-E1.LBA.3, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[88] Masahiko Takehara, Taichi Yamazaki, APPLICATION OF ACTIVITIES ON LUXURY CRUISE SHIPS TO SPACE TOURISM VESSELS, IAC-23-B3.IPB.6, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[89] Masahiko Takehara, Taichi Yamazaki, ASTROLOGY IN THE SPACE AGE: WHAT WILL HAPPEN TO THE HOROSCOPES OF THOSE BORN ON THE MOON?, IAC-23-E1.9.8, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[90] Ayako Kurono, Taichi Yamazaki, Haruto Kurono, EXPLORING THE CONCEPT AND POTENTIAL OF SPACE MUSEUMS FOR PRESERVATION, EDUCATION, AND TOURISM, IAC-23-E5.5.2, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

[91] Haruto Kurono, Hikaru Otsuka, Taichi Yamazaki, Ayako Kurono, BUILDING A LUNAR COMMUNITY FOR CHILDREN: CHALLENGES OF COOPERATION AND SIMULATING TEAM BUILDING, IAC-23-D4.2.7, 74th International Astronautical Congress (IAC), Baku, Azerbaijan, 2023, 2-6 October.

Reference to a website:

[92] Website of ASTRAX, Inc., ASTRAX PORTAL, <https://astrax.space> (accessed September.1.2023)

IAC-23-E1.9.3

故郷の菰野町を「宇宙の町」にする地方活性化プロジェクト

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Abstract

In Japan, the concentration of population in urban areas and the declining birthrate and aging population have led to the decline of rural areas. To solve this problem, I have planned and started to put into practice a space project to revitalize the region by turning my hometown, Komono Town, into "space town." First, we have initiated activities to introduce space education programs to schools in order to get parents and children living in Komono Town interested in private space travel and the private space business. Specifically, we visit the mayor of the municipality and the board of education, and hold lectures by private astronauts at elementary and junior high schools to implement the program to give children a dream. In addition to children, we also offer lectures on commercial space travel for elderly people living in Komono Town. Nearly half of the population of Komono Town is elderly. By having a goal of space travel, the elderly will find a purpose in life, which will enhance their vitality and revitalize the community. Furthermore, we will make effective use of vacant houses and land owned by the elderly by converting them into places to practice private space education. We will also attract tourists from other regions by offering space tours to simulate space travel with private astronauts using a private spacecraft education and training simulator, which was created by converting a camping trailer.

In this paper, I report the results of my examination of the project to revitalize my hometown, Komono Town, as a rural area by turning it into "space town," as well as the issues involved in the implementation of the project.

アブストラクト

日本では、都市部への人口集中と少子高齢化により、地方が衰退するという問題が生じています。そこで、このような問題を解決するため、私の故郷である菰野町を「宇宙の町」にすることにより、地域を活性化する宇宙プロジェクトを計画し、実践に向けて動き始めています。まず、菰野町に住む親子に、民間宇宙旅行や民間宇宙ビジネスに興味を持ってもらうため、宇宙教育プログラムを学校に導入するための活動を開始しています。具体的には、自治体の市長、教育委員会を訪問し、小学校、中学校で民間宇宙飛行士の講演会を開催して、子ども達に夢を与えるプログラムを実施しています。また、子どもたちだけでなく、菰野町に住む高齢者を対象に、民間宇宙旅行についての講座を開講します。菰野町の人口の半数近くは高齢者です。高齢者の方々が、宇宙旅行という目標を持つことで生きがいを見つけ、活力を高め地域の活性化に繋がっていきます。さらに、高齢者が所有する空き家・空き地を民間宇宙教育の実践の場所に変えることで有効活用していきます。また、キャンピング・トレーラーを改造して制作した民間宇宙船教育訓練シミュレーターを使って、民間宇宙飛行士と一緒に、宇宙旅行の疑似体験をする宇宙ツアーを開催して、他の地域から観光客を呼び込みます。

本論文では、私の故郷の菰野町を、「宇宙の町」にすることで地方を活性化するためのプロジェクトの内容、実践における課題点について、検証結果を報告します。

Keywords: 菰野町、地方活性化、SKIP

Nomenclature

菰野町: 三重県にある地方都市

近年、日本では若い人々が都市部に移転することで人口が減少し、地方が衰退するという問題が生じています。私の故郷・菰野町も同様に、人口が減少し、空き家・空き地が増えています。

1. はじめに

私が運営するオンライン学習塾 SKIP (Star Kids International Program)では、授業の一環として、民間宇宙教育プログラムを実施しています。

昨年 2022 年の論文では、「日本の学校における民間による商業宇宙に関する教師不足を解消するための宇宙教育プログラム」を発表しました。

この民間宇宙教育プログラムによって、故郷の菰野町を、「宇宙の町」として活性化することを計画しています。

具体的には、①学校で、民間宇宙飛行士による講演会を実施、②高齢者を対象にした民間宇宙旅行の講座を開講、③空き地を民間宇宙教育の実践の場として利用、④キャンピング・トレーラーを改造して民間宇宙船教育訓練シミュレーターとして利用することを計画しています。

2. 民間宇宙飛行士の講演会を実施

2.1 講演会の概要

菰野町に住む子ども達に、宇宙に対する夢を持ってもらうため、自治体の市長や教育委員会を訪れて、地域の小学校や中学校での講演会を企画しています。2023年冬に実施することが決まっています。

私の自治体は、小学校が5校と中学校が2校あります。生徒数は、合計約4千人になります。学校での講演会という方法をとることにより、一度に多くの子ども達に、民間宇宙旅行への夢や希望を持ってもらうことができます。

また、ひとつの自治体での講演会が成功した後は、隣の自治体でも同様に、学校での講演会を実現していきます。これにより、非常に多くに子ども達に、民間宇宙旅行に対する夢や希望を与えることができます。



図 1 菰野町の教育長と

2.2 課題

宇宙教育プログラム実施後のアンケート調査によると、プログラムによって、民間宇宙旅行に対する好奇心が大きく刺激されていることが伺えます。

しかし、プログラムを受けた子供達の、その後の行動を調査すると、日々宿題やテストに追われて、プログラム受講によって喚起された好奇心は、およそ一週間以内に消えてしまっていることが分かります。

2.3 解決策

宇宙教育プログラムや講演会の参加者を対象に、SNS 等を利用したオンライングループを作り、定期的に、民間宇宙旅行に関心を持つ仲間達と交流することで、宇宙に対する好奇心を維持します。

3. 高齢者を対象に、民間宇宙旅行の講座を開講

3.1 講座の概要

菰野町の人口の約25%は高齢者(65歳以上)です。そのため、地方活性化のためには、高齢者を対象にした講座が不可欠です。

そこで、地域の公民館で、高齢者を対象に、最先端の民間宇宙旅行について学ぶ講座を開催します。

まず、民間宇宙旅行に必要な資金面について、効率的に資金を積み立てる資産計画を、ファイナンシャルプランナーとしてアドバイスをを行います。

また、孫に、民間宇宙旅行をプレゼントする方法について、生前贈与や、遺言として資産を残す方法など、行政書士として法律面でのアドバイスをを行います。



図 2 高齢者向け民間宇宙講座

3.2 課題

民間宇宙旅行は、地方に住む高齢者にとっては、自分達とは関係のない話と思っている。そのため、講座開催の案内を告知しても、人がなかなか集まらないという問題があります。

3.3 解決策

講座の内容について、講座の前半に、「遺言の作り方」「空き家・空き地の有効活用の仕方」「農地の相続」など、今、地域の高齢者が抱えている問題を解決する講座を行います。そして、講座の後半に、民間宇宙旅行についての話を行うことで、高齢者を集めます。

4. 空き地を民間宇宙教育の実践場として利用

4.1 空き地の利用の概要

日本の地方部では、若い人が都市部へ移動することにより、地方の人口が減少し、空き家・空き地が増えています。そこで、これらの空き家・空き地を有効活用することで、地方を活性化します。

具体的には、石が放置されている空き地を、月のクレーターと想定して、親子で月面体験ができるイベントを計画しています。これにより、都市部から地方に、人を呼ぶことができます。



図 3 月面体験イベントの候補地

4.2 課題

空き地の所有者が、民間宇宙旅行に関心がないため、民間宇宙教育実践の場としての利用に承諾してくれない。空き地の所有者が不明、または遠方に引っ越している場合があるという問題があります。

4.3 解決策

上記セクション2で述べた民間宇宙旅行の講座に参加してもらい、「空き地に課税される税金対策」など、所有者が直面している問題解決のための講座を合わせて行うことで、理解を得てもらいます。
所有者不明の場合は、行政に協力を求める必要があります。

5. キャンピング・トレーラーやドームハウスを改造した民間宇宙船教育訓練シミュレーターの利用

5.1 民間宇宙船教育訓練シミュレーターを利用した教育の概要

菰野町の空き地に、キャンピング・トレーラーやドームハウスを改造して制作した ASTRAX 民間宇宙船教育訓練シミュレーターを設置します。
また、これらのシミュレーターは移動可能なため、町内の小学校や中学校でも体験会を実施します。

上記セクション1で述べた民間宇宙飛行士による講演会を実施した学校で、民間宇宙船教育訓練シミュレーター体験学習会を行うことで、民間宇宙旅行をリアルに感じてもらうことができます。



図 4 ASTRAX 民間宇宙船教育訓練シミュレーター

5.2 課題

公立学校の敷地内に、キャンピング・トレーラーやドームハウスを持ち込むためには、行政の許可が必要になりますが、行政手続きは、非常に長い時間がかかる場合があります。また、空き地に設置する場合は、上記セクション 3.2 と同様の問題があります。

5.3 解決策

日本の行政機関は、初めてのプロジェクトに対しては保守的に進捗が遅いですが、一度前例を作れば二度目は早いです。また、行政機関と信頼関係を構築できれば、比較的早く話が進みます。そのため、一度目のプロジェクトを確実に成功させることで、行政機関と信頼を築き、次のプロジェクトの早期の実現を目指します。

6. 結論

故郷の菰野町を、「宇宙の町」にすることにより地方を活性化するためのプロジェクトを実施していくためには、その前提として、行政と住民の理解と協力が必要不可欠です。

しかし、現時点では、これらが不十分です。その原因は、民間宇宙旅行に対する情報の不足と偏りが考えられます。そのため、まず、行政職員や住民の主要メンバーに、積極的に情報提供を継続していく必要があります。

また、ほとんどの住民は、「宇宙は自分の人生には関係ないもの」と考えています。そのため、宇宙イベントへの参加を促すためには、参加によって日々の生活にメリットがあることを感じてもらう必要があります。具体的には、宇宙教育イベントに参加することで、理科や英語に対する学習意欲が向上する、空き地を宇宙教育の場所として有効活用することで税金対策になるなどです。

これらの活動によって、民間宇宙旅行に対する関心を喚起して、宇宙プロジェクトに対する行政と住民の理解を得た上で、同プロジェクトを円滑に進めていきます。

参考文献

学会/国際会議論文

- 【1】民間商業宇宙飛行士と新規宇宙ビジネスの展開について
- 【2】Overview Of ASTRAX Space Services Including Over 50 Space Businesses, 50 以上の宇宙事業を含む ASTRAX の宇宙事業の概要
- 【3】ASTRAX Zero Gravity Flight Services In Japan, 日本における ASTRAX 無重力飛行サービス
- 【4】ASTRAX Lunar City Development Project, ASTRAX 月面都市開発プロジェクト

【5】ASTRAX Space Services Platform By Using Blockchain Technology, ブロックチェーン技術を活用したアストラックス宇宙サービスプラットフォーム

【6】ASTRAX Universal Service Platform By Using Blockchain Technology, ブロックチェーン技術を活用した ASTRAX のユニバーサルサービスプラットフォーム

【7】Mission Control Center To Support Commercial Space Missions And Passenger'S Activities Inside Of The Cabin, 商業宇宙ミッションと乗客の機内活動を支援するミッションコントロールセンター

【8】ASTRAX Academy And Space Business And Space Flight Support Educational System, ASTRAX ACADEMY と宇宙ビジネス・宇宙飛行支援教育システム

【9】Mission Support Control Center And Suborbital Spacecraft Simulator To Support Commercial Space Missions And Customer Activities, 商業宇宙ミッションと顧客活動を支援するミッション支援管制センターとサブオービタル宇宙船シミュレータ

【10】Zero G-Naut And Mission Commander To Support Commercial Space Missions And Customer Activities Inside Cabin, Zero G-Naut と商業宇宙ミッションと顧客活動を支援するミッションコマンダー(船内)

【11】“ Space Scooter”: Space Mobility System Used In Space Hotels And Space Stations, 「スペーススクーター」宇宙ホテルや宇宙ステーションで利用される宇宙移動システム

【12】ASTRAX Lunar City Development Project 2020, ASTRAX 月面都市開発プロジェクト 2020

【13】ASTRAX Lunar City Economic System By Using Blockchain Technology, ブロックチェーン技術を活用した ASTRAX 月面都市経済システム

【14】ASTRAX Space Service Catalog System For Space Tourism, 宇宙旅行のための ASTRAX 宇宙サービスカタログシステム

【15】ASTRAX Universal Service Platform By Using Blockchain Technology,
ブロックチェーン技術を活用した ASTRAX ユニバーサルサービスプラットフォーム

【16】Experience And Lessons Learned From The Covid-19 Problem In Japan And Application To Space Travel,
日本の COVID-19 問題から得た経験と教訓、そして宇宙旅行への適用

【17】Zero-G-Naut And Mission Commander To Support Commercial Space Mission And Customer Activities Inside Cabin,
ゼロ G 飛行士とミッションコマンダーが、商業宇宙ミッションと顧客活動を機内でサポートする

【18】Creating A New Business Of Space Flight Attendant Service & SFA Academy,
スペースフライトアテンダントと SFA アカデミーという新しいビジネスの創出

【19】The Importance Of Kimono In Space, 宇宙での着物の重要性

【20】What Women Need For Space Travel,
女性が宇宙へ行くために必要なこと

【21】ASTRAX Lunar City Development Project 2021
ASTRAX 月面シティ開拓プロジェクト 2021

【22】Commercial Space Mission Support Control Center and Suborbital Spacecraft Simulator to Support Commercial Space Missions and Passengers Activities in Space
商業宇宙ミッションと宇宙での搭乗者の活動をサポートするための商業宇宙運用支援管制センターとサブオービタル宇宙船シミュレーター

【23】Initiative of development of the Solar System Economic Bloc by Using Blockchain Technology
ブロックチェーン技術を活用した太陽系経済圏構築構想

【24】Space Fashion and Space Culture in the Age of Space Travel and the Possibilities of “Space Hagoromo”
宇宙旅行時代の宇宙ファッションと宇宙カルチャー及び“宇宙羽衣”の可能性

【25】Making ASTRAX ACADEMY Online and Multilingual
「ASTRAX ACADEMY」のオンライン化と多言語化

【26】Potential Future Plan of Space Izakaya as a Place to Create New Private Space Business
新たな民間宇宙ビジネス創出の場としての宇宙居酒屋の将来性

【27】Fostering Universal Human Resources and Super Newtypes for the Space Age
ユニバーサル人材の育成と宇宙時代のスーパーニュータイプの養成

【28】Demand and Supply Matching by the ASTRAX LUNAR CITY Business Community and Residence Club
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【29】Outline of ASTRAX Private Space Business Creation Education and Training Center
ASTRAX 民間宇宙事業創出教育訓練センターの概要

【30】Prototype plans for various commercial spacecraft training simulators
さまざまな民間商用宇宙船訓練用シミュレータの試作計画

【31】Experiments on Coloring Soap Bubbles under Microgravity
微小重力下でのシャボン玉の着色に関する実験

【32】Study of the selection of location for commercial spaceports in Japan
日本における商業宇宙港の立地選定に関する研究

【33】Space Radiation Shielding by Water Dome in ASTRAX Lunar City on the Moon
ASTRAX 月面シティのウォータードームによる宇宙放射線の遮蔽

【34】Introduction of a practical example of ASTRAX Lunar City mapping with Minecraft and its linkage to Economic Activities on Earth
マインクラフトを使った ASTRAX 月面シティのマッピングの実践例と地球上の経済活動との連携の紹介

【35】Development of a Civilian Spacecraft Interior Simulator Using Minecraft
マインクラフトを用いた民間宇宙船内部シミュレーターの開発

【36】Proposal to Add a Space Economics Subcommittee to the UN Office for Outer Space Affairs' Committee on

the Peaceful Uses of Outer Space(COPUOS in UNOOSA)
国連宇宙局の「宇宙空間の平和利用に関する委員会」
(COPUOS in UNOOSA)に「宇宙経済小委員会」を追加
する提案

【37】The Gender Gap and Its Impact in Manga, Anime
and Other Space Creations
マンガ・アニメなどの空間演出におけるジェンダー・ギャップと
その影響

【38】Career Design in Space - From Challenged to
Challenging
宇宙でのキャリアデザイン - 挑戦者から挑戦者へ

【39】The Effects of Using Minecraft to Teach Children
about Space
マインクラフトを使って子どもたちに宇宙を教える効果

【40】Maintaining the Health of Pilots and Crew
パイロットとクルーの健康維持

【41】Consideration on the Creation of a Chicken Egg
Market at the Moon Village
月面ビレッジでの鶏卵市場の創設についての検討

【42】Consideration of the future prospects of the Space
Flight Attendant (SFA) profession with the expansion of
space travel marketing
宇宙旅行マーケティングの拡大に伴うスペースフライトアテン
ダント(SFA)という職業の将来性についての考察

【43】Problems and Solutions that are Preventing More
Women from Becoming Space Tourists
宇宙旅行者になる一般女性を増やすことを妨げている問
題点と解決方法

【44】人工衛星を使用した宇宙時代の平和思考と社会
経済学(ワンスマイルファンデーションシステム)

【45】最新型宇宙サービスアクセスアプリケーションツール
「ASTRAX U2U (Universal User Interface)」

【46】Development of a Teripper for intra-spacecraft
transportation,
宇宙船内移動用テリッパの開発

【47】Possibility of Zero-Gravity Flight Service by MRJ
(Mitsubishi Regional Jet),
MRJによる無重力飛行サービスの可能性

【48】Development of ASTRAX commercial spacecraft
education and training simulator,
ASTRAX 民間宇宙船教育訓練シミュレーターの開発

【49】Development of Space Shower,
宇宙シャワーの開発

【50】Production of space suits and replicas for space
travel,
宇宙旅行のための宇宙服とレプリカの製作

【51】ADVANCED SPACE SERVICE ACCESS
APPLICATION TOOL "ASTRAX UNIVERSAL
USER INTERFACE (ASTRAX U2U)",
先進の宇宙サービス利用アプリケーションツール「ASTRAX
Universal User Interface (ASTRAX U2U)」

【52】ASTRAX Solar System Economic Bloc Concept
using NFT and Metaverse Technologies,
NFTとメタバース技術による ASTRAX 太陽系経済圏構
想

【53】Development of a Real-life (Analog) ASTRAX
Lunar City Construction Project in Japan,
日本におけるリアル(アナログ)ASTRAX 月面シティ構築
計画

【54】Multilingualization of ASTRAX ACADEMY,
ASTRAX ACADEMY の多言語化

【55】Possibility of zero-gravity flight and space flight
by people with disabilities,
障がい者による無重力飛行と宇宙飛行における可能性

【56】Development of Space Toilet "Space BENKING"
in Japan,
宇宙用トイレ「宇宙ベンキング」の開発

【57】Disaster prevention and evacuation technologies on
Earth and their application to space travel,
地球上の防災・避難生活技術と宇宙旅行への応用

【58】Cleaning Methods for Reusing Clothes in Space,
宇宙で衣類を再利用するための洗浄方法

【59】How to Go to Space with Different Hairstyles,
さまざまなヘアスタイルで宇宙へ行く方法

【60】Research on Psychological Changes and Growth of
Children through Education Related to Commercial
Space Business,

商業宇宙事業に関連した教育による子どもの心理的変化・成長に関する研究

【61】What do they need for a space museum?,
宇宙ミュージアムに必要なものは？

【62】Establishment and development of a lunar community and activity space by children for children, 子どもによる子どものための月面コミュニティ・活動空間の構築と発展

【63】video editing services for space travellers,
宇宙旅行者のためのビデオ編集サービス

【64】technologies on a transparent restroom could be used for lunar habitats,
透明なトイレの技術は、月面基地にも応用できる

【65】ASTRAX Lunar City Project 2022,
ASTRAX 月面シティプロジェクト 2022

【66】The need for a space version of hand signals, a communication tool for space travelers,
宇宙旅行者のコミュニケーションツール、宇宙版ハンドシグナルの必要性

【67】Photography services and techniques required for space travel,
宇宙旅行に必要な写真撮影サービス・技術

【68】On images of the universe influenced by manga and anime,
マンガやアニメの影響を受けた宇宙像について

【69】A space education program to solve the shortage of commercial space teachers in Japanese schools,
日本の学校における民間宇宙講師不足を解消するための宇宙教育プログラム

【70】How to capture the cosmic diversity that is coming,
これからやってくる宇宙の多様性をどう捉えるか

【71】The Role of Space Flight Attendants in Large, Long-duration Space Travel,
大規模・長期間の宇宙旅行におけるスペースフライトアテンダントの役割

【72】Proposal for a business model that enables and encourages older adults to travel to space,
高齢者の宇宙旅行を実現・促進するビジネスモデルの提案

【73】Development of ASTRAX Zero Gravity Aircraft Education and Training Simulator
ASTRAX 無重力飛行機教育訓練シミュレーターの開発

【74】Developing technology for drinking chilled carbonated beverages in space
宇宙で炭酸飲料を飲むための技術開発

【75】Development of commercial spacecraft education and training simulator using the Metaverse メタバースを利用した民間宇宙船教育訓練シミュレーターの開発

【76】Construction plan of ASTRAX LUNAR CITY Simulation Facility in Japan 日本における ASTRAX 月面シティシミュレーション施設の構築計画

【77】Development of the space toilet called "Space Benking" 2023
宇宙用トイレ「宇宙ベンキング」の開発 2023

【78】Introduction of commercial space R&D center "ASTRAX LAB" in Japan
日本における民間宇宙開発センター「ASTRAX LAB (アストラックスラボ)」の紹介

【79】Analysis of passengers' needs and demands of ASTRAX Zero Gravity Services and application for space travel services
無重力飛行サービスに対する乗客のニーズ・要望の分析と宇宙旅行サービスへの応用

【80】The senses and creativity that can be achieved by bringing entertainment in space
宇宙空間でエンターテインメントを実現することで得られる感覚と創造性

【81】Technology, problems and solutions for drinking alcohol in space
宇宙空間でお酒を飲む際に必要な技術と問題点および解決方法

【82】Technology, problems, and solutions for space travel meals as represented by "yakitori", grilled chicken
焼き鳥に代表される宇宙旅行での食事に必要な技術と問題点および解決方法

【83】The Possibility of Developing Japanese Culture through "NATTO" in Space
宇宙空間における納豆を通じた日本文化の展開の可能性

【84】Local revitalization project to turn my hometown, Komono Town, into "space town"
故郷の菰野町を「宇宙の町」にする地方活性化プロジェクト

【85】Methods and Practices for Introducing Private Space Education Programs into Japanese Schools
民間宇宙教育プログラムを日本の学校現場に導入する方法と実践

【86】Development of a "lunar pattern okonomiyaki" baking method to help promote tourism in a lunar city
月面シティの観光振興に貢献する「月面模様お好み焼き」の焼き方開発

【87】Space Education and Nutrition Education Using "Solar Planet Takoyaki"
「太陽系惑星たこ焼き」を利用した宇宙教育と食育

【88】Application of activities on luxury cruise ships to space tourism vessels
豪華客船内アクティビティの宇宙観光船への応用

【89】Astrology in the Space Age: What will happen to the horoscopes of those born on the Moon?
宇宙時代における占星術 月生まれの人のホロスコープはどうなるの？

【90】Exploring the Concept and Potential of Space Museums for Preservation, Education, and Tourism
保存・教育・観光のための宇宙ミュージアムのコンセプトと可能性を探る

【91】Building a Lunar Community for Children: Challenges of Cooperation and Simulating Team Building
子どものための月面コミュニティづくり: 協力への挑戦とチームビルディングの模擬体験

Reference to a website:

【92】 Website of ASTRAX, Inc., ASTRAX PORTAL, <https://astrax.space> (accessed September 1, 2023)