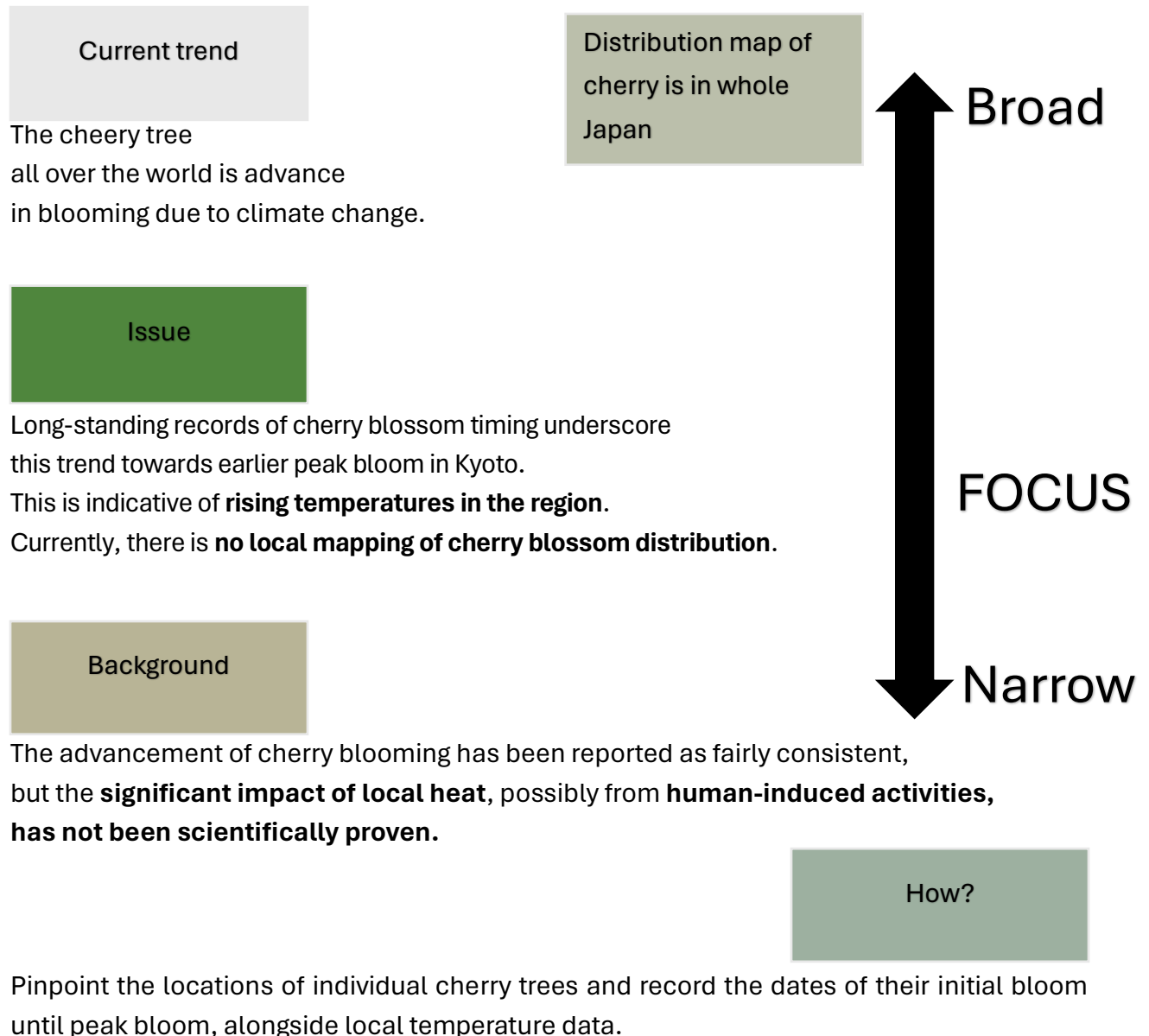


2. [Research Plan] Provide a concise statement using conceptual diagrams, etc. as necessary. The maximum length of this section is one (1) page. You must not change the format or add extra pages.

(1) Positioning of the Research

Describe the positioning of the research that you will pursue as JSPS Research Fellow, including the current trends, issues, and other background information on the relevant research area, and how you came to conceive your research plan.



[Research Plan] (Continued) Provide a concise statement using conceptual diagrams, etc. as necessary. While there are no limitations to the number of words for each item, the maximum length of this section is two (2) pages in total. You must not change the format or add extra pages.

(2) Research Objectives, Description, etc.

- (i) State the objectives, methods, and details of the research in the research plan you will pursue as JSPS Research Fellow.
- (ii) Give a specific description of your research plan, what you aim to establish, and to what extent. This should be in line with the funding category (the range of total budget) you choose for Grant-in-Aid for JSPS Fellows (See the remark* below).
- (iii) Explain also, the features and uniqueness of your research (comparison to prior studies, etc., expected impacts upon completion of the research, future prospects, etc.).
- (iv) If your research plan is positioned as part of the research activities of your affiliated laboratory, identify the portion you will be responsible for.
- (v) If you plan to engage in research at research institutions other than the host research institution (including overseas research institutions, etc.) during the research plan period, provide the specifics of the plan.

*If the research period for Grant-in-Aid for JSPS Fellows is 3 years (DC1 only), the total budget shall be: maximum 2.4 million yen for [Funding Category A]; over 2.4 million yen and up to 4.5 million yen for [Funding Category B]. If the research period is 2 years, the total budget shall be: maximum 1.6 million yen for [Funding Category A]; over 1.6 million yen and up to 3 million yen for [Funding Category B]. If the research period is 1 year, the total budget shall be: maximum 800,000 yen for [Funding Category A]; over 800,000 yen and up to 1.5 million yen for [Funding Category B]. (Funding Category B can be selected only if you need extra budget to carry out your research plan.)

The main objective of the research is to investigate the relationship of local temperature with the blooming date and to predict the pattern of the spatial distribution of the invasive alien species damage.

Sub-objective and research questions.



- i) To identify which type of cherry tree is less affected by temperature?

To investigate the relationship between local temperature effect on the cherry flowering.

- ii) Which neighborhood area achieve fastest full bloom?



- iii) How urban heat island effects the blooming period?



- i) To investigate the relationship between location and infected tree?

To estimate the trend of spatial distribution expansion on invasive alien species that damage the cherry.

- ii) What is the correlation between wind speed and the damage trunk?



- iii) What is the percentage of damages risk for the tree to die?



- i) Is there a correlation between temperature and potential habitat of the invasive species?

To investigate the relationship of disease of cherry by invasive alien with temperature that affect the quality of the flower.

- ii) To identify which factor most significant for cherry conservation?

Methodology

Study the local temperature effect the flowering earlier date.

1. Classify the satellite imagery for land cover and point the location of cheery tree individually.
2. Get the information of sun inclination angle, either it blocking by building.
3. Record the temperature on the individual cherry tree by using the smart phone device that has the thermal sensor as well as captured the image of the tree (for 3 years pHD duration). Ensure to enable the location device to get the coordinate of the individual trees (i) along the river, (ii) foot path and (iii) motor ways. Gather the sample between 50 -100 trees in every location based on the study area decided. Collect the archive temperature by satellite imagery.
4. Map the individual trees accordingly and fill in their attribute information such date start bloom including temperature.
5. Analyze the pattern of the different full bloom and cluster the pattern.

Prediction expansion of invasive species spatially of sakura tree

Based on (Osawa et al.2021) they already developed the expansion prediction model based on the river density, pathway and road density. So that I am using the same components but extend with another variable which is the trajectories flying boundary of the adult *Aromia bungii*.

1. In order to study the movement of the adult beetle flying trajectories, tag the adult beetle at the same time install the transmitter on it.
2. Scanned the area using the terrestrial laser scanning infected meaning (the tree that already become the host – can be detected by the holes existence on the tree) where the larvae already inside (along the river, foot path and motor ways). (Depending on the budget) ; however another possible way if by taking a photos. The image later is used for training sample data then use a neural network to train an object detection model. In this stage is more to image recognition and deep learning.
3. Calculate how many holes that had the larvae inside in one tree. Based on the previous record calculate the probability of survival larvae to become pupa and then adult suit with the local temperature condition.
4. With the probability of the survival larvae as well as reflect with how many holes in one tree, estimate the risk by parameter of the wind speed in the area. By theory if there are so many holes, and with the high speed on wind the tree has the chance to fall.
5. Analyze and stimulate the pattern flying movement, wind, river density and road density and model it.
6. Apply random forest, train and evaluate the model before using it to generate robust prediction.
7. Expected outcome the risk of death tree spatially (based on the wind speed include probability surviving rate of larvae that feed the tree. The expansion simulation in the future based on the buffering flying trajectories, wind, river density and road density)

3. Protection of Human Rights and Compliance with Laws and Regulations The maximum length of this section is one (1) page. You must not change the format or add extra pages.

Use this column to describe the actions and measures you will implement if your [2. Research Plan] includes research activities that require actions based on guidelines, laws and regulations, etc. (including guidelines, laws and regulations, etc. of the countries/regions in which joint international research may be conducted), including research that requires obtaining consent and/or cooperation of counterparts, research that requires special attention in the handling of personal information, and research that requires actions related to bioethics and/or biosafety and research that requires security export control.

Provide specific information on the status of the approval process, as this will apply to surveys, research, experiments, and other activities that would require approval by an internal or external intelligence committee, ethics board, or other review boards, for example, questionnaire/interview/behavioral surveys involving personal information (including personal histories and videos), surveys, etc. of domestic and foreign cultural heritage sites, use of donated specimens, research of invasive nature, human genome analysis, genetic recombination experiments, animal testing and research on sensitive technologies.

Indicate “not applicable” if this does not apply to your research plan.

“ Not applicable”

4. [Self-analysis on applicant's ability to conduct research] While there are no limitations to the number of words for each item, the maximum length of this section is two (2) pages in total. You must not change the format or add extra pages.

Provide specific statements on (1) your strengths in research, and (2) qualities that you think you will need to acquire for further growth as researcher, each in the relevant research area and in relation to your past engagements in research activities, etc., including the Research Plan proposed in this Application.

(1) Your strengths in research

I have a passion in geospatial related with environment and nature. My final year degree project is about the landslide detection using laser scanning technique. Because of my passion, I was assigned to second supervisor where I have to travel 4 hours by bus to meet him who is expert in landslide.

I am very determined person and perseverance. I save my money to travel to meet him and sacrifice my mid semester break to learn about simulation 3D for landslide layer. It is very difficult because this is the first time I have to learn the new thing that was not expose before. Hard work always paid off.

From my research I manage to present the poster of the research in :

- International Symposium Digital Earth 2013, in Malaysia which is about Detection of Tropical Landslide Using Airborne LiDAR Data and Multimagery; A Case Study in Genting Highland Pahang.
- 34th Asian Conference on Remote Sensing 2013 focusing on technical.

Even though I was working in industry for almost 7 years, I am still collaborating with university as the technical advisor for their research. Recently, there are 2 papers was published and they acknowledged me as technical support in GIS software. Those two papers are:

- i. Integrating Green Infrastructure Distribution and Green Corridor Mapping with Proposed Green Trail Area and WildlifeHuman Conflict Using Remote Sensing-GIS Approach by Pertanika Journal; Received: 15 August 2023 Accepted: 26 October 2023 Published: 04 April 2024.
- ii. Satellite-based landslide distribution mapping with the adoption of deep learning approach in the Kuantan River Basin, Pahang by World Sustainable Construction Conference 2023 IOP Conf. Series: Earth and Environmental Science.

(2) Qualities that you think you will need to acquire for further growth as researcher

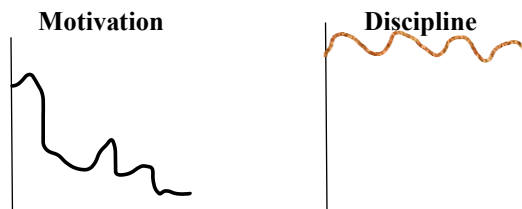
“ if learning the truth is the scientist’s goal, then I must makes myself the enemy of all that I read”

By Ibnu Al Khaytam

This quote makes me remember the story behind the optic theory by him where he found the theory of light when he was imprisoned.

- The quality that I need for further growth as researcher is stated from the quote, where I have **to read a lot of research finding and the method was used, and keep improvise the technique to find the truth.**
- **Never give up to reach the goal of the research** even though there are many obstacles have to face, keep learning and frequently as the question if there is a problem during conduct the research.
- **Increase the inquiry level and become a good observer and good in analytical.**
- **Collaborate and communicate with the expert** either in online forum, online conference, Github, Twitter which is called X now, including LinkedIn. I have exchanged the idea and get the technical method to complete the research before through Twitter.
- Well-planned and consistence. The figure of consistency is consisting of motivation and discipline.

CONSISTENCY



5. [Ideal figure of researchers, etc.] While there are no limitations to the number of words for each item, the maximum length of this section is one (1) page in total. You must not change the format or add extra pages.

The JSPS Research Fellowship Program aims to foster and recruit creative researchers who will become future leaders of scientific research in Japan. In light of this objective, provide a statement on (1) what you consider an ideal figure of researchers, and (2) the positioning of research activities to be conducted during the fellowship tenure to become an ideal researcher figure.

(1) What you consider an ideal figure of researchers *Include in your statement what qualities you should acquire to become an ideal research figure.

#To become an ideal figure of researcher I should **develop my skill in analytical data** because handling big data is tedious and time consuming. Finding the fastest way and practical can save more time.

#I also have to achieve an **effective communication** when discuss the progress of research with supervisor and prepare the point and figure before consultation. Documenting the outcome and always find the solution and asking either this is the best way to complete or not.

Become the **independent researcher** rather than waiting for the spoon to feed. Always outline the testing and jotted down every pro and cons and consult the supervisor.

Enhance the time management in reading the journal for literature review, learning the technical in analyzing data, and writing the article and produce high impact factor journal.

Be a **goal-oriented person** any get use to be a parallel person not a cascading one. Always do many things parallel like throwing one stone killing two birds.

An ideal researcher also is a **well-planned person**. Follow the Gantt chart and do not overdue the milestone often.

(2) Positioning of research activities to be conducted during the fellowship tenure to become an ideal researcher figure stated above.

* **Develop my skill in analytical data** ----- analyze the big data of temperature and locate individual tree

***Effective communication** ----- attend the seminar or conference and present the progress consistently

***Independent researcher** ----- always giving an idea and construct nicely before consultation

***Enhance the time management** ----- follow closely the Gantt chart to achieve one objective per year

***Goal-oriented person**----- achieve the to do list per week before the milestone overdue.

***Well-planned person** ----- plan the survey/observation well due to the financial constraint and time for cherry blooming is short.