

Critical Zone and Ecosystem Dynamics: Abandonment & Rebound

July 10, 2023-July 19, 2023



Summer Course on Critical Zone and land-use change and their
impacts on water and soils and social impact
In Tsukuba, Japan

Venue: University of Tsukuba 1-1-1 Tennodai Tsukuba, Ibaraki, JAPAN

Contact: Yuichi Onda (University of Tsukuba) email: onda@geoenv.tsukuba.ac.jp

For more info and application, please visit the website <https://www.ied.tsukuba.ac.jp/en/summer-school-2023-in-japan-2/>

Critical Zone and Ecosystem Dynamics: Abandonment & Rebound

Summer Course on Critical Zone and land-use change and their impacts on water and soils and social impact

July 10- 19, 2023

Director: Timothy White (The Pennsylvania State University, USA)

Scientific Secretary: Yuichi Onda (University of Tsukuba, Japan)

Lectures by

Timothy White (The Pennsylvania State University, USA)

Ashlee Dere (University of Nebraska-Omaha, USA)

Suzanne Anderson (University of Colorado, USA)

Jr-Chuan Huang (National Taiwan University, Taiwan)

Adam Wymore (University of New Hampshire, USA)

William McDowell (University of New Hampshire, USA)

Sharon Billings (University of Kansas, USA)

Angela Kent (University of Illinois, USA)

Osamu Saito (Institute for Global Environmental Strategies, Japan)

Herlin Chien (National Pingtung University of Science and Technology, Taiwan)

Janet Swim (Pennsylvania State University, USA)

Hérivaux Cécile (French Geological Survey, France)

Le Coent Philippe (French Geological Survey, France)

Yasushi Mori (Okayama University, Japan)

Takashi Gomi (Tokyo University of Agriculture and Technology, Japan)

Yuichi Onda (University of Tsukuba, Japan)

Overview

The Critical Zone (CZ) is the system that supports all terrestrial ecosystems and extends from the unweathered rocks to the top of any vegetation canopy in the CZ. Physical, biological, geological, and hydrological processes interact at multiple temporal and spatial scales.

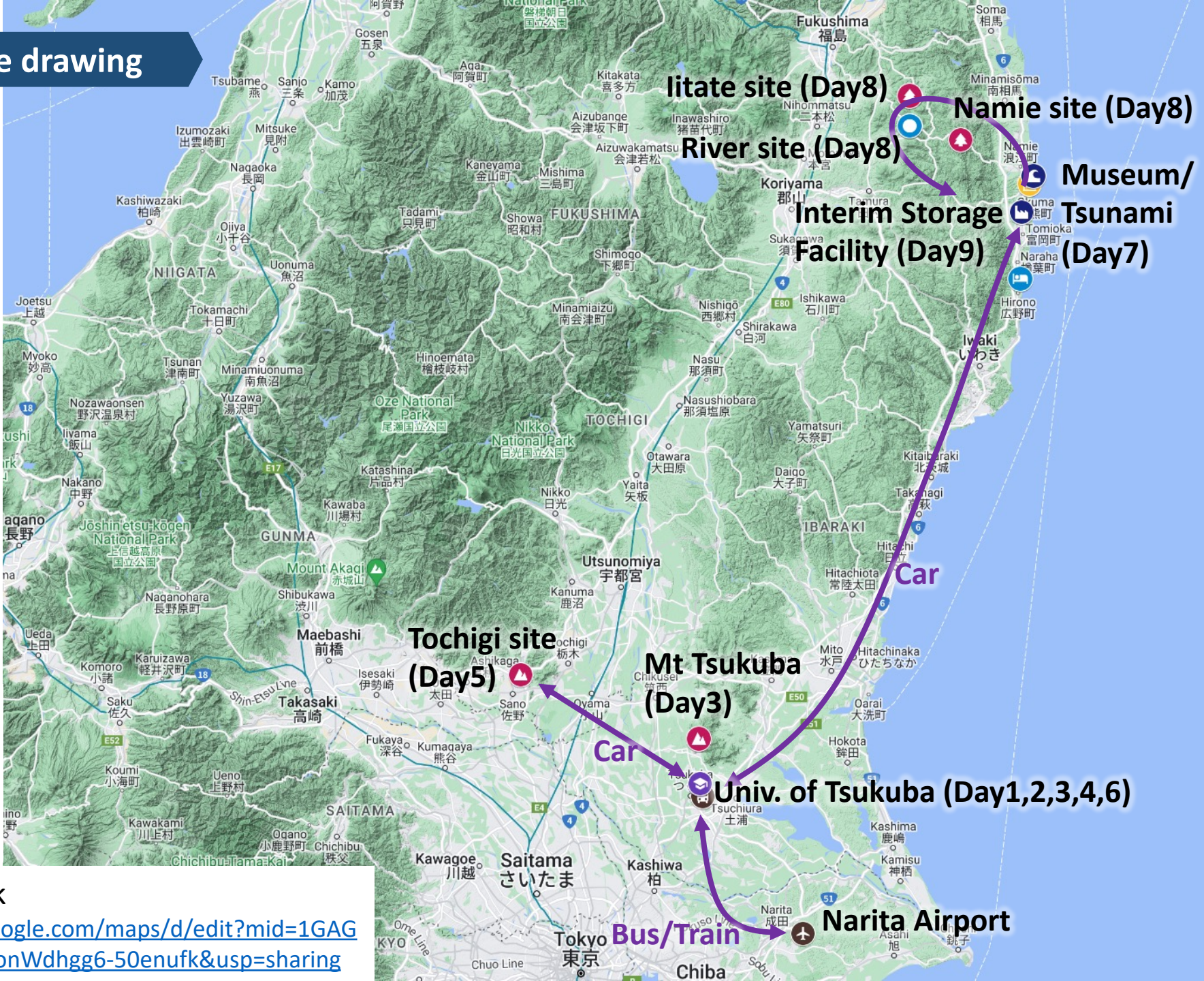
This 9-day summer course will focus on aspects related to hydrology, soil geochemistry and weathering, vegetation dynamics and distribution, microbiota, biodiversity, ecosystem processes, geological processes related to the CZ, and the relationship of the CZ to sustainable development goals, with a basic focus on the relationship between critical zone function and ecosystem dynamics.. The course will cover in-situ data, long-term ecosystem studies, chemical and isotope laboratory analysis, remote sensing observations, and numerical modeling. It also includes field trips to three different locations, including Fukushima, Hokkaido, and Tochigi, for lectures and experiments, as well as discussions with local people.

The course is intended for PhD students, post-doctoral fellows and researchers working or planning to work on Critical Zone processes and ecosystem dynamics. The lectures will be held mainly in the lecture rooms of the Research Building A at the University of Tsukuba. This ABRESO Summer School is organized by CRIED (Center for Research in Isotopes and Environmental Dynamics) at the University of Tsukuba in collaboration with The Pennsylvania State University.

For more information, please contact: Yuichi Onda (University of Tsukuba

email: onda@geoenv.tsukuba.ac.jp

Schedule drawing



My map Link
<https://www.google.com/maps/d/edit?mid=1GAGQqGxIhCVfGaonWdhgg6-50enufk&usp=sharing>

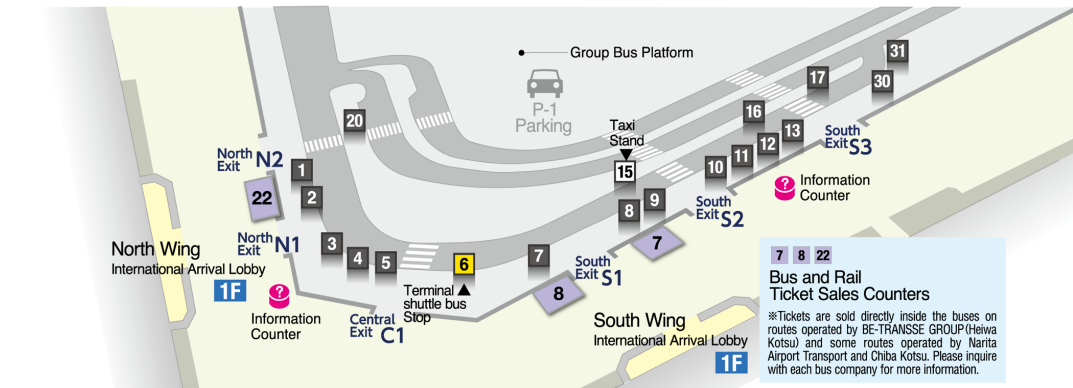
From Narita Airport to Tsukuba Center

A bus to the Tsukuba Center is available directly from Narita Airport.

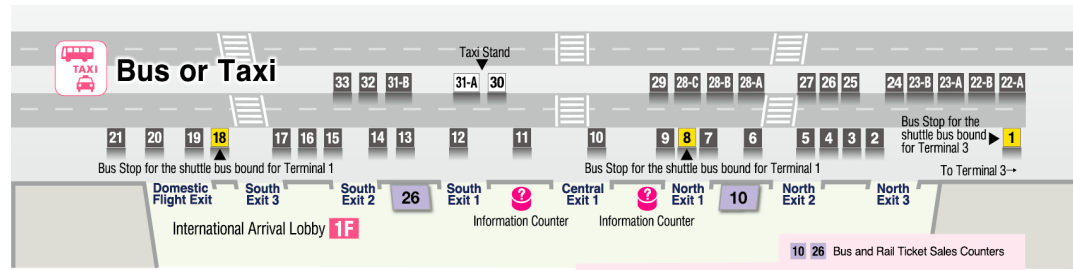
It takes about 60 minutes from Narita Airport to Tsukuba Center by bus. Take a bus at the bus stop No.8 from Terminal1 or at the bus stop No.10 from Terminal 2. You can check the Kanto Testudo Bus Website for more information http://kantetsu.co.jp/bus_reserve/

Narita Airport (Airport Liner NATT'S) → Tsukuba Center					
Narita → Tsukuba			Tsukuba → Narita (Reservation required)		
Narita Airport Terminal 2	Narita Airport Terminal 1	Tsukuba Center	Tsukuba Center	Narita Airport Terminal 2	Narita Airport Terminal 1
9:35	9:40	10:35	5:20	6:15	6:20
10:45	10:50	11:45	7:20	8:15	8:20
13:05	13:10	14:05	11:50	12:45	12:50
16:25	16:30	17:30	13:50	14:45	14:50
17:55	18:00	18:55	15:20	16:15	16:20
22:35	22:40	23:35	20:20	21:15	21:20

To Narita, Reservation Number : 029-822-5345 (Mon-Sat 8:30-19:00)
 One Way Ticket : 2,300yen



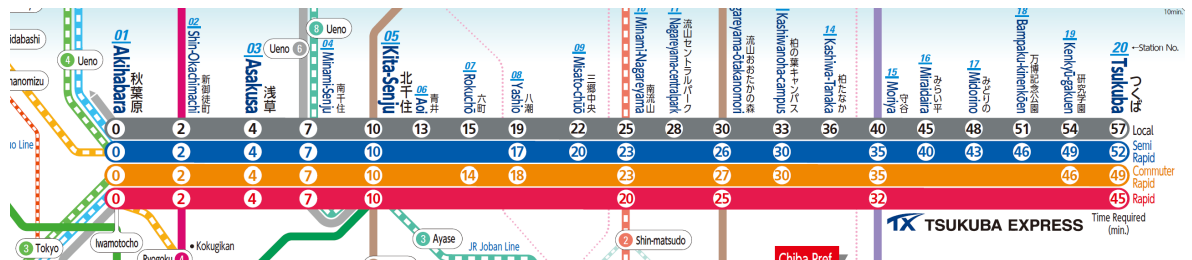
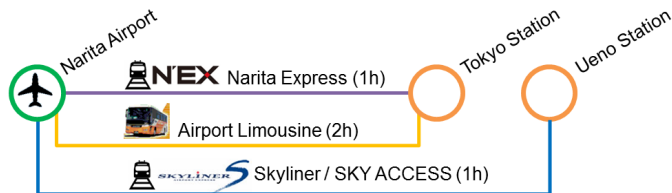
Terminal 1



Terminal 2

If you want to use **the train**, participants will need to travel to the **Tokyo station** (GPS: 35.681422, 139.766092) and take a Yamanote-line. Get off at Akihabara station and transfer to Tsukuba Express (TX) which will take you Tukuba Center. It takes 45 minutes from Akihabara Station to Tsukuba Station by rapid train.

The Narita Express train and Airport Limousine bus connects the airport to Tokyo Station. Route MAP → https://www.mir.co.jp/en/howto/route_map/



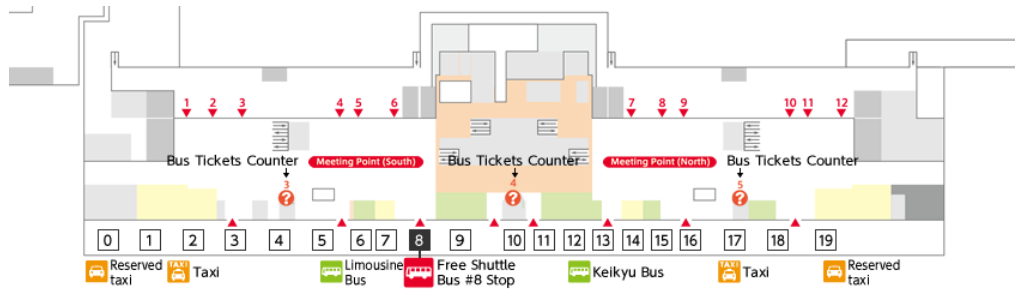
From Haneda Airport to Tsukuba Center

A bus to the Tsukuba Center is available directly from Narita Airport.

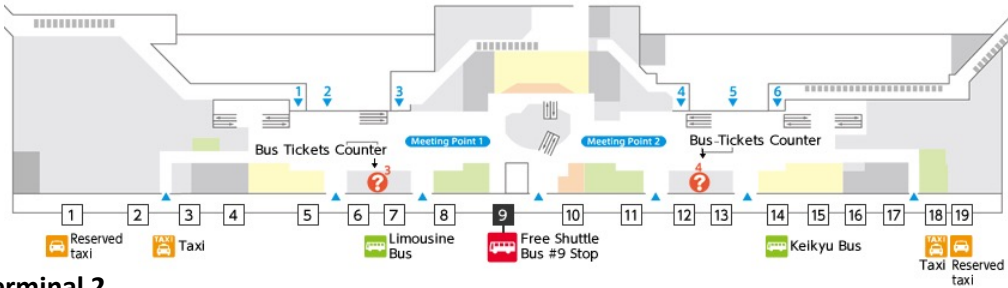
It takes about 120 minutes from Haneda Airport to Tsukuba Center by bus. Take a bus at the bus stop No.6 in the International Terminal or at the bus stop No.13 in the Terminal 1 or 2.

Haneda Airport → Tsukuba Center			
Haneda → Tsukuba		Tsukuba → Haneda	
Haneda Airport International	Tsukuba Center	Tsukuba Center	Haneda Airport International
9:20	11:20	6:00	7:59
12:15	14:15	9:00	11:09
17:05	19:05	13:10	14:59
19:05	20:45	15:50	17:39
One Way Ticket : 1,900yen			

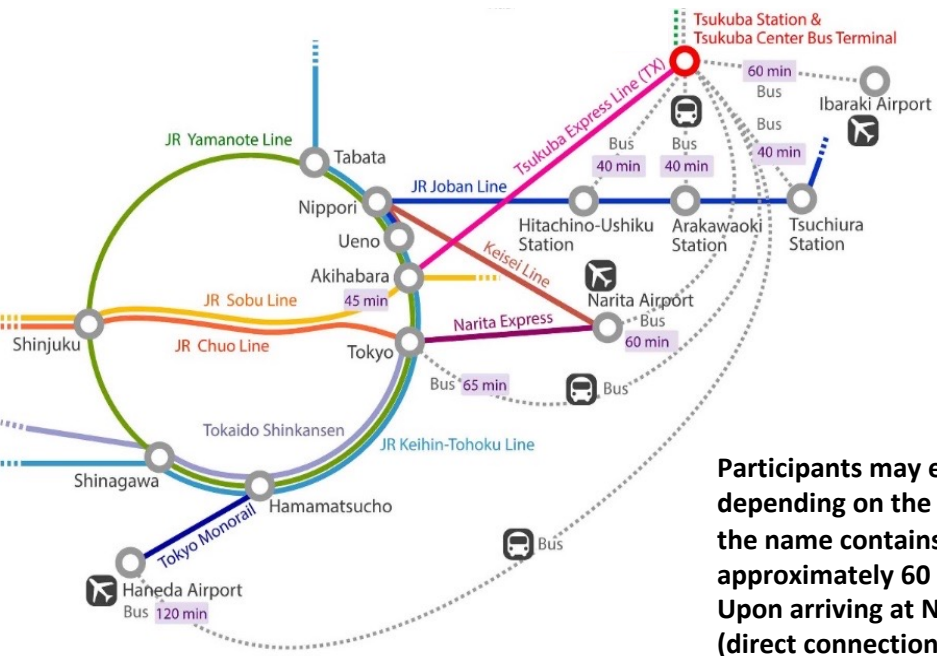
Haneda Airport : <http://www.tokyo-airport-bldg.co.jp/en/access/>
 Keikyu Bus : <http://www.keikyu-bus.co.jp/airport/>
 Kanto Testudo Bus : https://kantetsu.co.jp/bus/highway_tsukuba_haneda.html



Terminal 1



Terminal 2



Participants may enter Japan either via Tokyo Narita Airport (NRT) or Tokyo Haneda Airport (HND) depending on the airline you are travelling with. The NRT airport is located in Chiba prefecture although the name contains "Tokyo". The HND airport is located within Tokyo prefecture. Tsukuba City is approximately 60 km from Tokyo. Upon arriving at Narita (NRT) or Haneda (HND) airport, participants will need to travel to Tsukuba by bus (direct connection from NRT and HND) or by train (from the both airports).

Access to University of Tsukuba from Daiwa Roynet Hotel

We are planning to hire a bus from the hotel to the campus, but you can also easily get to the campus by public transport!



It takes about 2mins by walk from Daiwa Roynet hotel to Tsukuba station Bus terminal and Tsukuba Station



Take the Bus from TSUKUBA Station Bus terminal No.6 bound for "University of Tsukuba Loop" or "Tsukuba Daigaku Chuo" for 10-15 minutes to "Tsukuba Daigaku Chuo." Please get off at "Tsukuba Daigaku Chuo". Research Building A is located next to that bus stop.



Research Building A

Bus stop

Click here for details on bus stops.

https://www.tsukuba.ac.jp/en/about/campus-access/tsukuba-access/campusbus_route_en.pdf



During your stay in Japan

Money

The unit of Japanese currency is YEN (¥ JPY). There is no limit on the amount of any currency that may be brought into or taken out of Japan. However, if you transport exceeding 1,000,000 yen worth in Japanese currency into or out of the country then a custom declaration must be completed.

Traveler checks are not recommended as they are rarely accepted in Japan. Only very limited spots accept them such as leading banks, hotels, Ryokan (Japanese inns) and stores in major cities.

Cash withdrawal from off-shore banks using credit, debit, prepaid and cash cards can only be done at ATMs of Japan Post Bank, Seven Bank, and Citibank. Please note that no other Japanese banks currently accept international transactions.

Japan Post Bank : http://www.jp-bank.japanpost.jp/en/ias/en_ias_index.html

Seven Bank : <http://www.sevenbank.co.jp/english/atm/>

ATM Locator : <http://www.visa.com/atmlocator/>

Electricity

The voltage in Japan is 100 volt, and the frequency in Eastern Japan (Tokyo and Tsukuba) is 50 Hz. The electrical plugs have two non-polarized pins. Participants are expected to ensure they have appropriate power adaptors and/or transformers for their equipment.



Time zone

All of Japan is in the UTC +9:00 time zone. There is no daylight savings time in Japan.

July 10 (Mon) arrival

Welcome to Japan!!

During your time in Tsukuba, you will stay at Daiwa Roynet Tsukuba.



<https://tonarie-tsukuba.jp/restaurant/>
(please translate to your language with chrome/edge)

A few minutes' walk away is a shopping complex called Tonarie. The Q't in the shopping complex contains a food court and restaurants. On arrival day or on days when you do not have a joint dinner, it is convenient to use the Q't. (Accept major credit cards; Tipping is not required in Japan)



tonarie Q't 1F
Nene Chicken & Johnno Hattog
chicken + korean food



tonarie Q't 1F
魚料理 fish bowl shop
Seafood bowl specialty store



tonarie Q't 3F
あやまがらり Aoyama Garari
Soba and sake



tonarie Q't 3F
焼肉亭 Yakiniku Toraji
Grilled meat



tonarie Q't 3F
セイゼリヤ Saizeriya
Italian wine & cafe restaurant



tonarie Q't 2F
スターバックス Starbucks Coffee
Cafe



tonarie Q't 1F
モスバーガー Mos Burger
eating and drinking



tonarie Q't 1F
ザンギ亭 Hokkaido Abashiri Zangitel
eating and drinking



tonarie Q't 1F
ステーキハウス New York Steakhouse
Steak/Toponyaki



tonarie Q't 3F
Like sake and Japanese dishes
Sake/Japanese food



tonarie Q't 3F
Authentic Indian cuisine ANO
Authentic Indian cuisine



tonarie Q't 3F
清六家 Seiroku family
ramen



tonarie Q't 1F
桃源 Taoyuan
Chinese set meal



tonarie Q't 1F
very berry cafe
eating and drinking



tonarie Q't 1F
築地 ぎんだこ Tsukiji Gindaco
Takoyaki



tonarie Q't 1F
ringier hat
Nagasaki champon specialty...



tonarie Q't 1F
Mister Donut
eating and drinking

Access to University of Tsukuba from Daiwa Roynet Hotel

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Research Building A

Click here for details on bus stops.

https://www.tsukuba.ac.jp/en/about/campus-access/tsukuba-access/campusbus_route_en.pdf



Day 1: July 11 (Tue)

The lectures will be held mainly in the lecture rooms of the Research Building A at the University of Tsukuba.

Lithosphere

9:00-11:10

Intro to CZ + Geoscience in context of CZ

Timothy White (The Pennsylvania State University, USA)

12:30-14:40

Regolith and soils and soil Geochemistry

Ashlee Dere (University of Nebraska-Omaha, USA)

15:00-17:10

Regolith, weathering engine, and geomorphology

Suzanne Anderson (University of Colorado, USA)

with some tie vie aspect and weathering engine to climate to lead into next day



Reception



Kappo Ichinoya
5,000JPY x 40 people
with all-you-can-drink
(Bus transportation)

Vegetarian option available

Food at University of Tsukuba

Establishment	Address	Category	Opening Hours	Average price
	Café MARHABAN University of Tsukuba CentralArea2, Buildings 2B 1F	Halal certification	11:00 ~ 15:00 (Monday to Friday)	¥ 600
	Canteen University of Tsukuba CentralArea2, Buildings 2B 1F	Japanese food Western food	8:20~18:40 (Monday to Friday) 10:00~13:30 (Saturday)	¥ 500
	Foodcourt 粉とクリーム (kona-to Cream) University of Tsukuba CentralArea3 Buildings 3A 1F Food Court	Italian Japanese style bread	8:15~18:30 (Monday to Friday) 8:15~14:00 (Saturday)	¥ 600
	Starbucks Coffee University of Tsukuba CentralArea1 Central library Store	coffee shop	8:00~20:00 (Monday to Friday) 10:00~18:00 (Saturday,Sunday)	¥ 500
	Restaurants Administration Center Area Administration Center Building annex 1F	Japanese food Western food	11:00~14:00 (Monday to Friday)	¥ 700
	Soup factory University of Tsukuba CentralArea1 Buildings 1A 2F	Western food	11:00~18:00 (Monday to Friday)	¥ 500

Cash payment is required

Ramen shop
Soba shop
etc

Day 2: July 12 (Wed)

Land-atmosphere/Climate

9:00-11:10

- Water cycle/Hydrology
Jr-Chuan Huang (National Taiwan University, Taiwan)

Hydro continued with focus on aquatic Geochem, Geochem cycles, etc

12:30-14:40

- C/Q
Adam Wymore (University of New Hampshire, USA)

15:00-17:10

- Using a whole-system approach to understanding nutrient cycles
William McDowell (University of New Hampshire, USA)

Day 3: July 13 (Thu)

9:00-11:10

- Ecology in the context of CZ
Sharon Billings (University of Kansas, USA)

12:30-14:40

- Forest and Water in Japan
Takashi Gomi (Tokyo University of Agriculture and Technology, Japan)
- Overview of natural disturbance and the recovery processes, Hydrologic and Geomorphic aspects of natural disasters

Afternoon tour
& Dinner
at Mt. Tsukuba

3pm- Mt. Tsukuba Tour

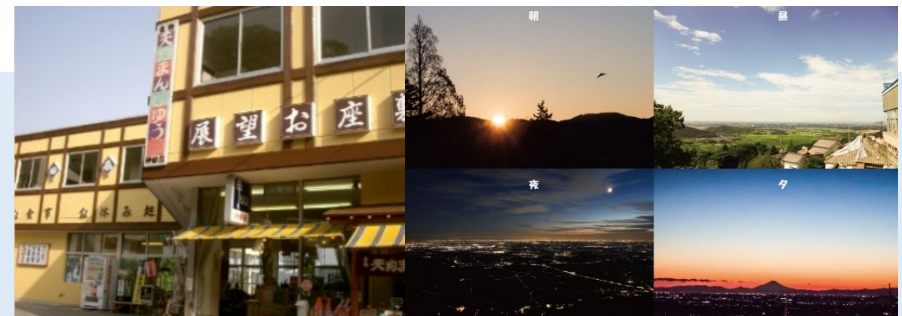


Bus trip (30minute ride: Japan side will pay)
Using bus and cable-car

<http://best-hike-japan.com/hiking/mt-tsukuba/>

Night Lecture: 17:30-18:30

- Geography, Climate of Japan and sustainability
Hiroshi Tanaka (University of Tsukuba)



https://tsukubasan-kandaya.com/wp-content/themes/kandaya_theme/images/kandaya_dantaisama_menu.pdf

(2000JPY+drink)

Day 4: July 14 (Fri)

Social sciences and stakeholder engagement

8:30-10:40

Osamu Saito (Institute for Global Environmental Strategies, Japan)

Future scenario analysis of biodiversity and ecosystem services

10:50-13:00

Herlin Chien (National Pingtung University of Science and Technology, Taiwan)

Socio-ecological system complication in water quality protection zone

14:00-16:10

Janet Swim (Pennsylvania State University, USA)

Psychological predictors of support for environmental policies.

16:20-18:30

Hérivaux Cécile and Le Coent Philippe (French Geological Survey)

Design and evaluation of land use change scenarios for sustainable groundwater management



Research building A110



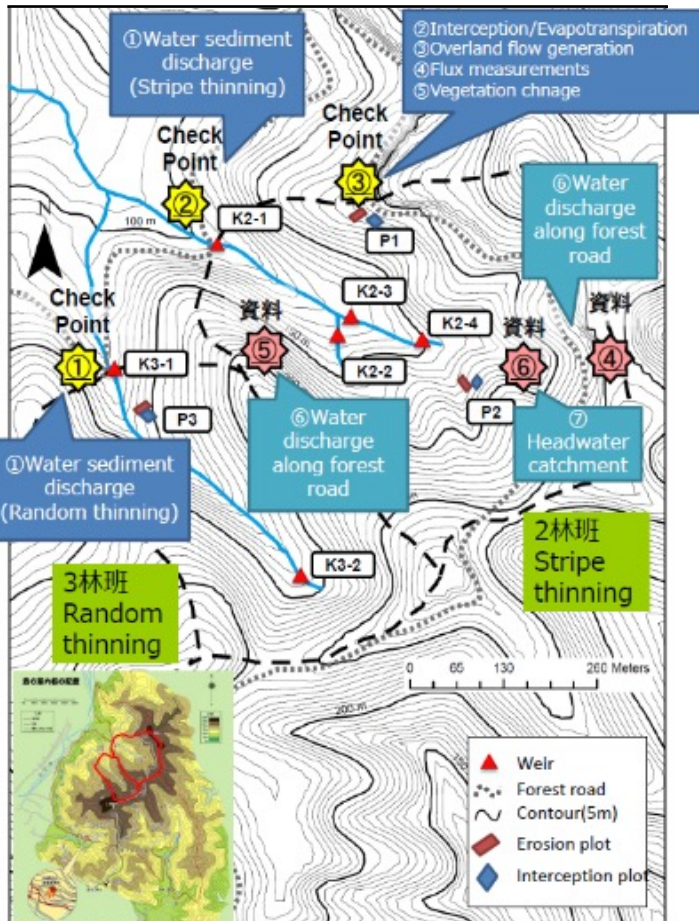
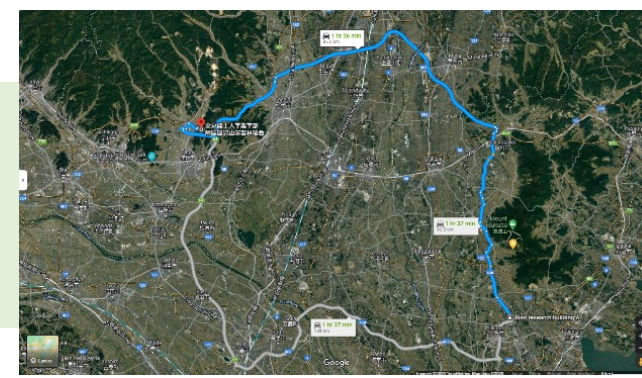
Research building A107

Day 5: July 15 (Sat)

One day Field Trips to Tochigi

Departure 7:30 AM Transfer to Tochigi Pref. (about 1h40min)

Field Trip : TOCHIGI site (Abandoned forest and recovery)



- Monitoring site, Dense and abundant forest, Management practices, Overall explanation
- Field visit and discussion at Gauging station of Discharge
- Field visit at Monitoring throughfall, stem flow, sap flow, and flux tower
- Analyze data with LiDAR and drone technology

Afternoon meeting

Meet with local people, people in forestry, NPOs, and local government. Furthermore, we invite lecturers from Forestry Agency, Forest Technology Association, etc. about forest management.



Discussion party Kappo Koraku
<https://www.kappoukoraku.com/menu>

17 : 00 – 19 : 00

Vegetarian option available

20:30 Hotel

Day 6: July 16 (Sun)

8:30-10:40

- Microbiological processes

Angela Kent (University of Illinois, USA)

10:50-13:00 Vegetation-Land a (TBD)

Vegetation –land-and-Atmosphere exchange

14:00-16:10

Paddy field and the effect of carbon storage

Yasushi Mori (Okayama University, Japan)

16:20-18:30

Yuichi Onda :(University of Tsukuba) Recovery of Fukushima



Research building A110



Research building A107

Day 7: July 17 (Mon)

7:00 Departure

10:00

The Great East Japan Earthquake and Nuclear Disaster Museum

<https://www.fipo.or.jp/lore/>



Tsunami affected area

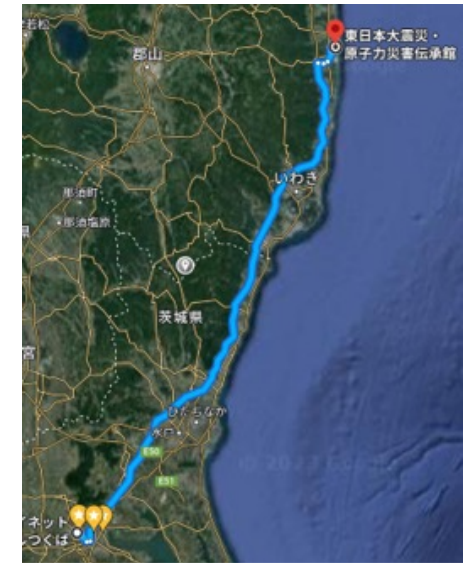
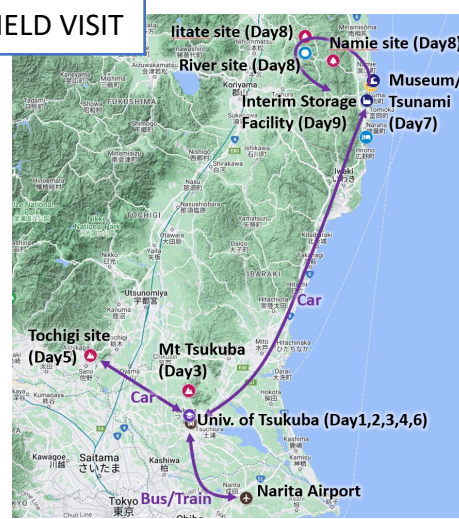


Dinner
&
Stay



J Village stay overnight
10,000JPY / night with breakfast
Dinner 2100JPY

FIELD VISIT



Afternoon Namie forest site



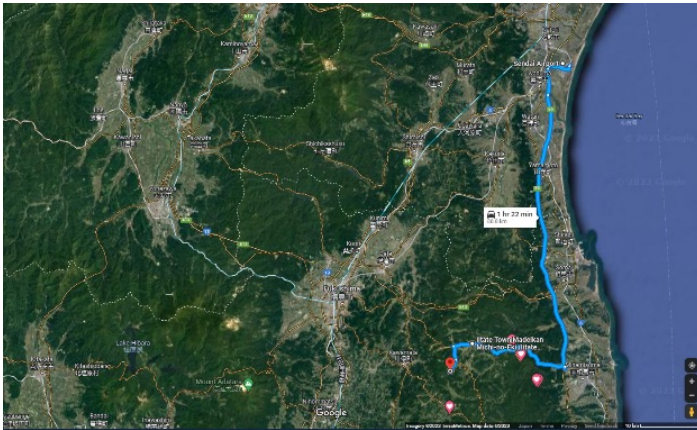
Night Seminar

19:00-20:30

TBD

Day 8: July 18 (Tue)

Field Trip : FUKUSHIMA site (Abandoned land by Fukushima Daiichi Nuclear Power Plant accident and their recovery)



Visit Fukushima decontamination site at IITATE and NAMIE

and also discuss with
the local people
13:00-



Dinner
&
Stay



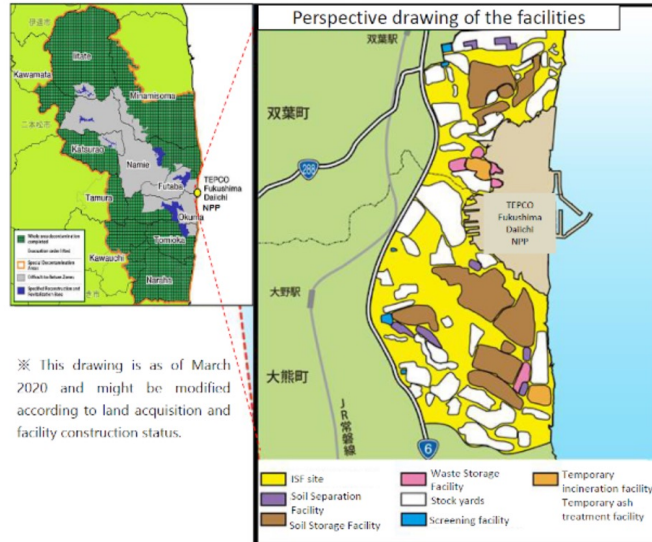
J Village stay overnight
10,000JPY / night with breakfast
Dinner 2100JPY



Farewell

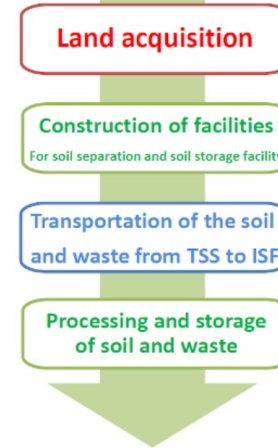
7pm-9PM Tim cup!
Farewell event Football tournament
12000 JPY/hour

Interim Storage Facility



※ This drawing is as of March 2020 and might be modified according to land acquisition and facility construction status.

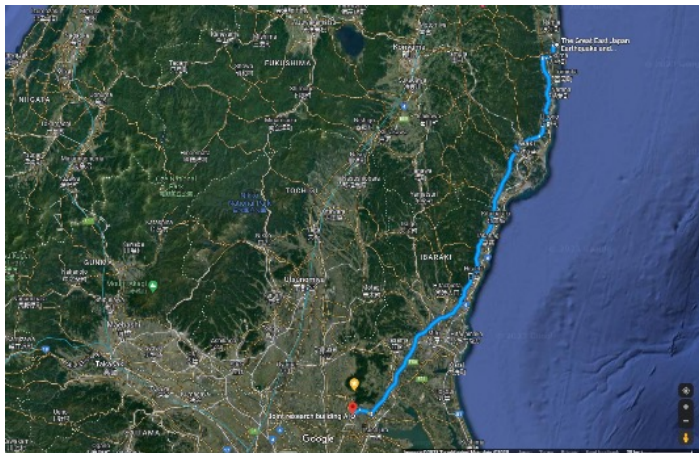
【Process of the ISF Project】



<http://josen.env.go.jp/en/storage/>

Arrive Tsukuba at 14:00 (about 3h)

<https://goo.gl/maps/BPyPveEkNugERgAf6>



Narita airport at 15:00

<https://goo.gl/maps/5hDLTYLLDLrpDThP7>

