

# Q&A (TA)

H. Sagawa

# 1) What is the reason for the apparent lack of funding?

- **JSPS TAx4 grant** is originally planned for **TAx4 SD construction** and the TA operation is planned for **other grants** to be proposed. However, we could not obtain **enough**. Therefore the grant for TAx4 SD was not fully used for TAx4 SD construction. Since TA is the part of TAx4 and this possibility is mentioned in the grant proposal, and TAx4 grant was used partially for **TA operation**.
- We did not include the **surveys** and **consulting fee** for EA (Environmental Assessment) document. The costs of surveys and consultant fee for writing EA were paid by UofU for the TA construction. Originally UofU included some amount of SD part for TAx4 FD, but it was not included due to the reduction of the approved cost.
  - **Surveys**: animals, plants, archeological by Environmental Inspectors (EI)
  - Several years for writing EA by **consultants**
  - **2 EIs** always accompanied for SD deployment with helicopter
- We did not include the costs of surveys since there was hope by UofU that some surveys may not be necessary. We have not actually known whether we needed surveys for TAx4 before BLM (Bureau of Land Management) required.
  - For the land survey, at the beginning BLM asked a several-year survey, but fortunately it did not happen.
- Increase of the cost of material and helicopter operation etc.
  - More time consumed due to unexpected environmental condition

### 3) How much money is needed to complete the extension to TA4?

- 40 – 60 SDs can be supported by the Korean grant. We have deployed ~260 SDs. -> We need to construct ~200 SDs additionally as Japanese contribution.
- One of the choices
  - The 80 new SDs and 120 SDs that can be relocated\* from TA site can be considered
    - The cost can be ~1.3 M\$.
    - \*: see page 7

2) If another 5 years are needed to complete TAx4 and the total running time should be 10 years, would the science target still be reachable?

The possible increase plan of the size (1 = TA size)

		now	Grant I (5 years)					Grant II (5 years)					total
JFY	2008	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
	- 2018												
<b>a</b>	11	2.5	2.5	3	3	4	4	4	4	4	4	4	50
<b>b</b>	11	2.5	2.5	4	4	4	4	4	4	4	4	4	52

Case a: it was mentioned in my talk

Case b: the earliest case to achieve the full TAx4

The difference is small

## 4) What are the yearly running costs for TA and what is the share for ICRR or Japan?

### Yearly cost for TA Japan

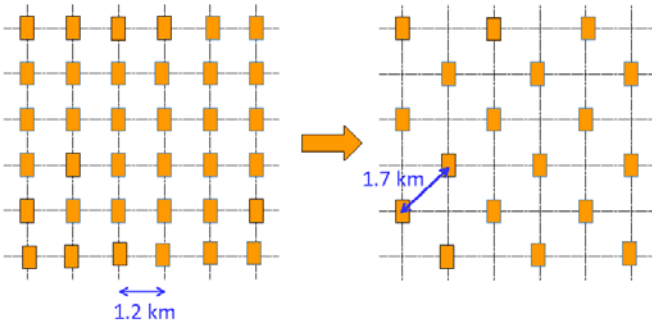
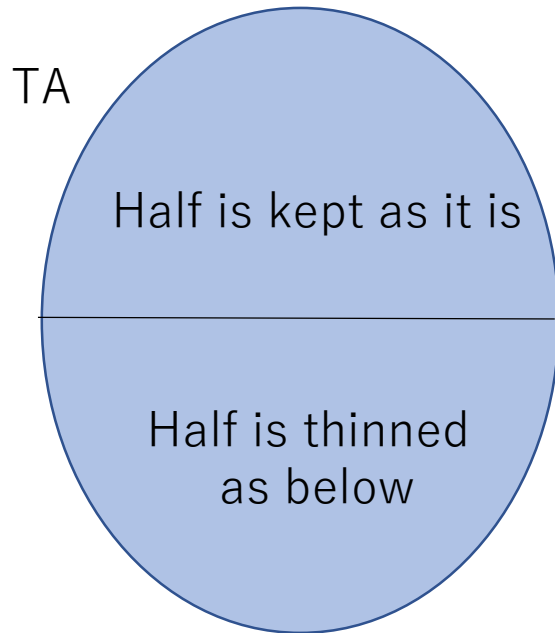
		(K\$)
operation	FD fuel, FD/CLFF propane Maintenance/repair Local employee (only 1 now) Car rental, gas Operation facility/accommodation rental	300
researchers	Postdoc (3) [only 1 now]	170
shifts	Observation/maintenance	90
TA meetings	US(once)/Belgium(once), Korea(0 or once)+ $\alpha$	35
TA meetings	Inside Japan (not in ICRR)	5
conferences		45
total		645

Partially the cost is supported by ICRR money

## 4') In addition (in the near future),

- we need to exchange 4 FD generators ( 2 for 2 FD sites) and 507 TA SD batteries.
- The exchange of SD batteries needs to be performed by helicopter because the weight of each SD battery is 30 kg, but we cannot go to the SD place by car where there is no road due to the requirement by BLM.
  - The batteries needs to be exchanged every ~7 years.
  - The last exchange: in 2011/2012

# Supplement of 3)



\*: relocation or thinning of SDs from the TA site

- The first ~2 years should be kept as the current TA because the TAx4 needs a reference.
- In order to keep TA as a monitor,
  - the half of the TA should be kept as it is.
  - Another half of the TA can be thinned diagonally.
  - The spacing becomes 1.7 km, so the energy threshold is increase, but it is ok for the highest-energy cosmic rays.