

# LC, Which and Where

Mostly personal views

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# Which one?

- Now **ITRP** (International Technology Recommendation Pannell - ‘Wise persons committee’) is reviewing the LC technologies.
- The ‘**decision**’ is to come out later this year.
- Will the ‘decision’ be **final**?
  - ◆ It should carry a considerable weight ( we want to move ahead with LC).
  - ◆ Depends on the type of the answer (a clear choice, or did it throw a dice?)
  - ◆ Political environments ?

- After the ITRP report, pre-GDO (Global Design Office) will start.
- Will it base the design on the single technology? (assumed yes)
- At what timing, the host region/country will emerge?
- Will the host region/country have impact on the technology? (can it reverse the ITRP decision?)

The most important:  
At least one tech. should work!

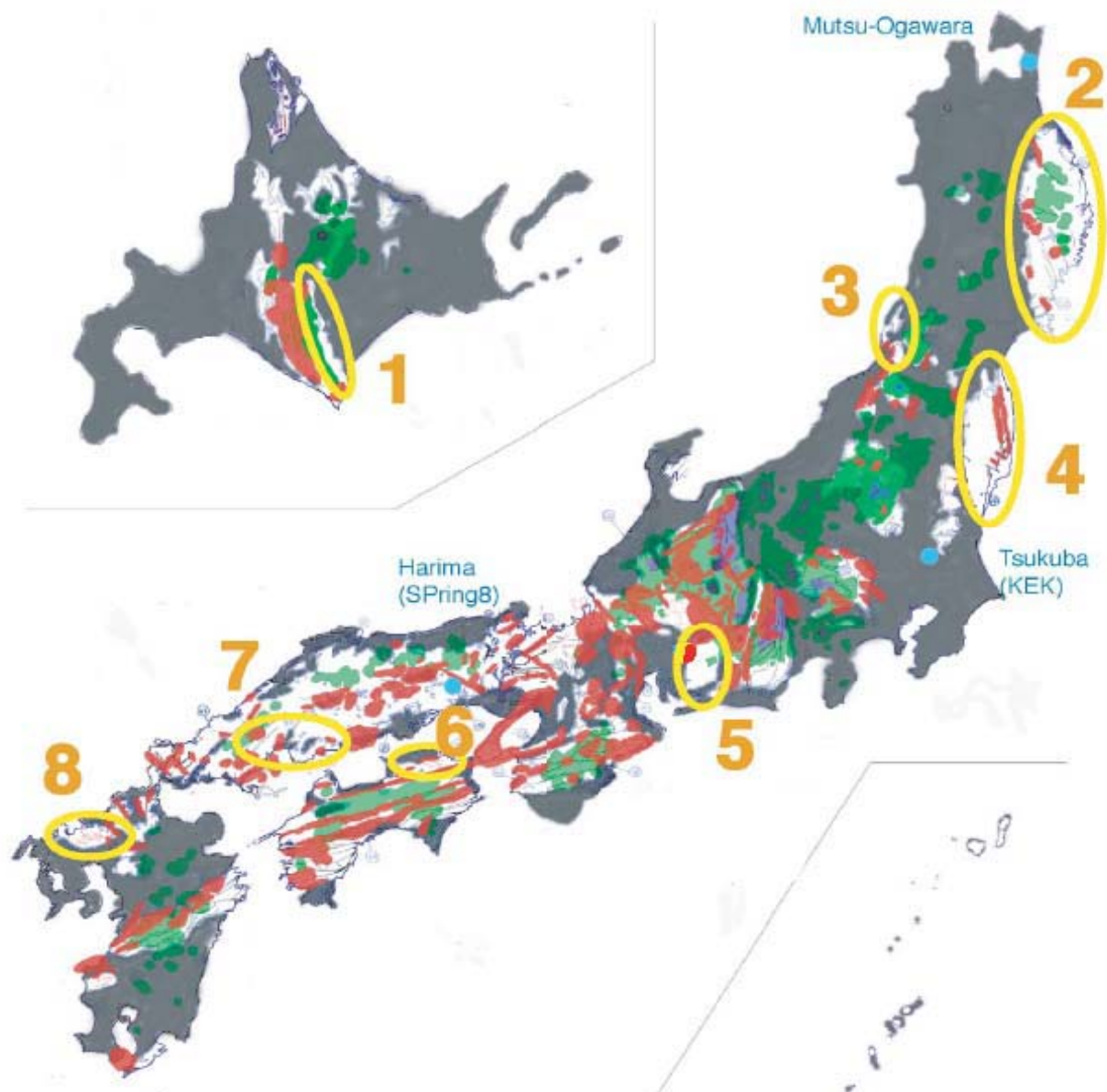
# Where?

- To be honest, I prefer a LC in Japan; **however**,
- **The most important** : We need at least one region/country willing to host LC.
- **Also important** : A framework should be setup so that strong commitments of all regions will continue after the host is decided.
  - ◆ LC should be attractive for non-host regions (worth ~1B\$)
  - ◆ Open and democratic participation of all regions in decision making.
  - ◆ Network tools of participations (**GAN** : Global Accelerator Network, **GDN**: Global Detector Network)
  - ◆ Learn from ITER.

# Brief History

- ACFA statements in 1996, 2001.
  - ◆ Strongly recommended that a LC be constructed with Japan as host.
- 2001: ‘Particle Physics Experiments at JLC’
- 2002: Asian LC Steering Committee (ALCSC) formed.
- 2003: Namkung committee, ‘JLC’→ ‘GLC’
- 2003: ‘GLC Project’(roadmap report)

Close collaboration with US on acc. tech.



# Site candidates

n	site	L km	geology	geography	altitude m	depth m	available electricity MW	T °C
1	Hidaka	28	granite, hornfels	base of mountains	270	38-499	<b>526</b>	7
2	Kitakami	31	granite	hilly terrain	100	80-600	<b>746</b>	10
3	Murakami	30	granite	highland	-5~70	36-563	<b>154</b>	14
4	Abukuma	36	granite	highland	390	30-300	<b>962</b>	11
4	Kita-Ibaraki	30	granite	highland	210~310	40-330	1138	13
5	Aichi-Gifu	22	granite	highland	78~407	20-200	2788	15
6	Takamatsu	30	granite	base of mountains	100~200	50-370	2788	15
7	East-Hiroshima	30	granite	hilly terrain	250~300	40-450	1748	13
8	Seburi	38	granite	hilly terrain	110~230	60-520	2788	16

# Will Asia/Japan willing to host a cold LC?

- We prefer the warm technology (a large amount of investment so far).
- But only if it works.
- The criteria should be to maximize the overall probability of success.
- The answer would be **YES**, if it is beneficial for the criteria.
- A KEK group has been working on the cold technology (e.g. the electro-polishing of the RF structure).



# LC Experimental Collaborations

- **How many?** (2 IR's suggested - one to accommodate the  $\gamma\gamma$  option)
- Form **pre-collaboration**? (to organize the detector designs etc.)
- There are **Tesla design**, **GLC design**, **NLC Small design** etc.
- Will it boost international cooperation? Or, will it become regional shootouts? (we should avoid the latter)
- In concepts, there are only two designs : **small and large**.

# GLC detector design only for warm machine?

- Bunch patterns
  - ◆ Warm : 150Hz. Read out in gap.
  - ◆ Cold : 5Hz. Read out 20 times in train.
- Vertexing
  - ◆ Current CCD tech. OK for warm.
  - ◆ Need further R&D for cold (CMOS etc.).
- Tracking
  - ◆ Jet chamber OK for warm, problem for cold.
  - ◆ TPC needed for cold.
- We plan for **both technologies**.