EAP-ILTER: Regional Effort for Ecosystem Research and Management under Climate Change

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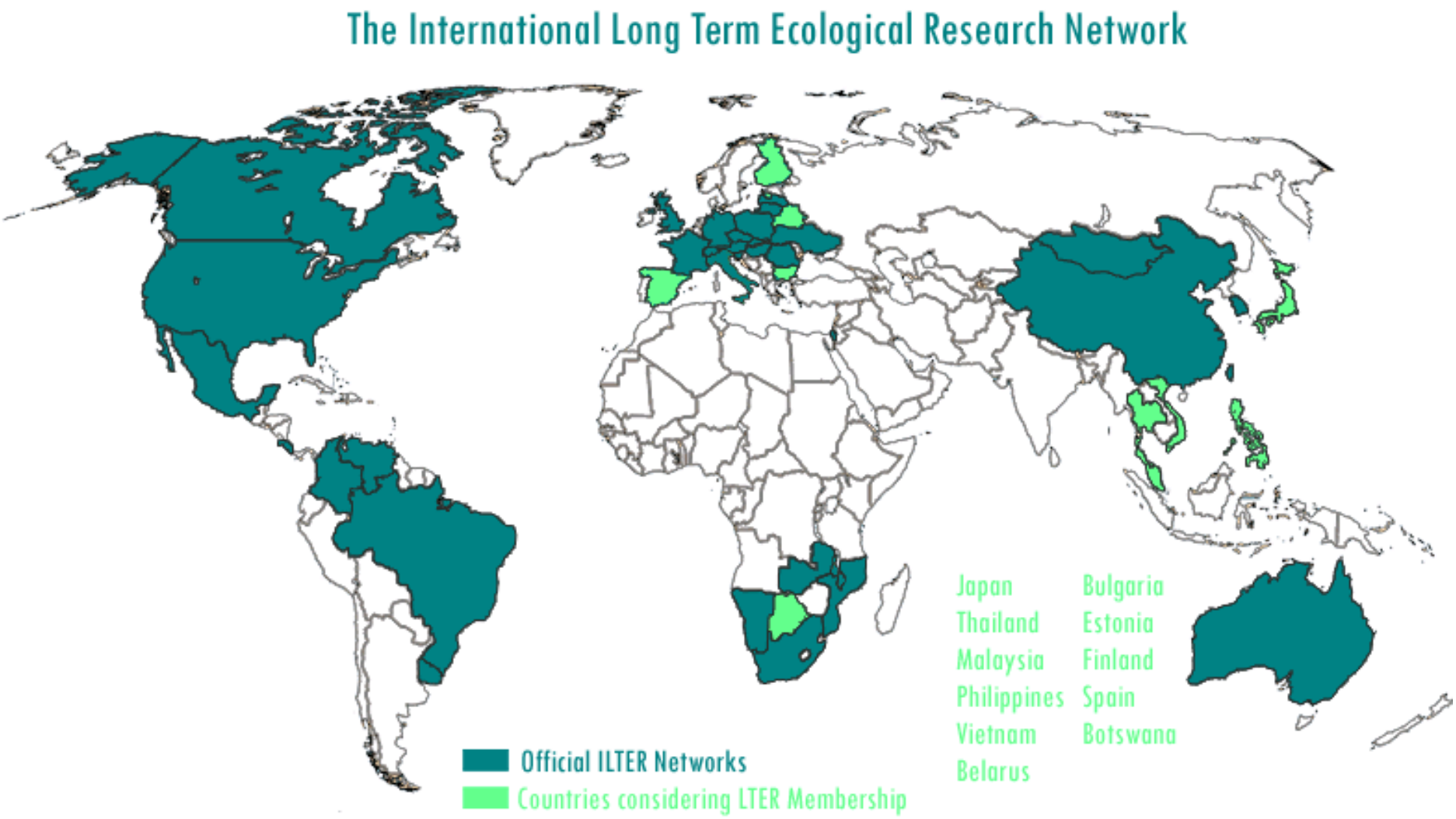
International Long Term Ecological Research Network (ILTER)



Goals of ILTER

1) Foster collaboration and coordination among ecological research networks at local, regional and global scales;
2) Improve comparability of long-term ecological data from sites around the world, and facilitate exchange and presentation of these data;
3) Deliver scientific information to scientists, policymakers and the public to me the needs of decision makers at multiple levels;
4) Facilitate education of the next generation of long-term scientists.

The key issues of ILTER at Present

1) Climate change;
2) Sustainable development;
3) Biodiversity and its sustainable use;
4) Sustainable use of resources and ecosystem management (including water resource management);
5) Environmental hazards and disasters.

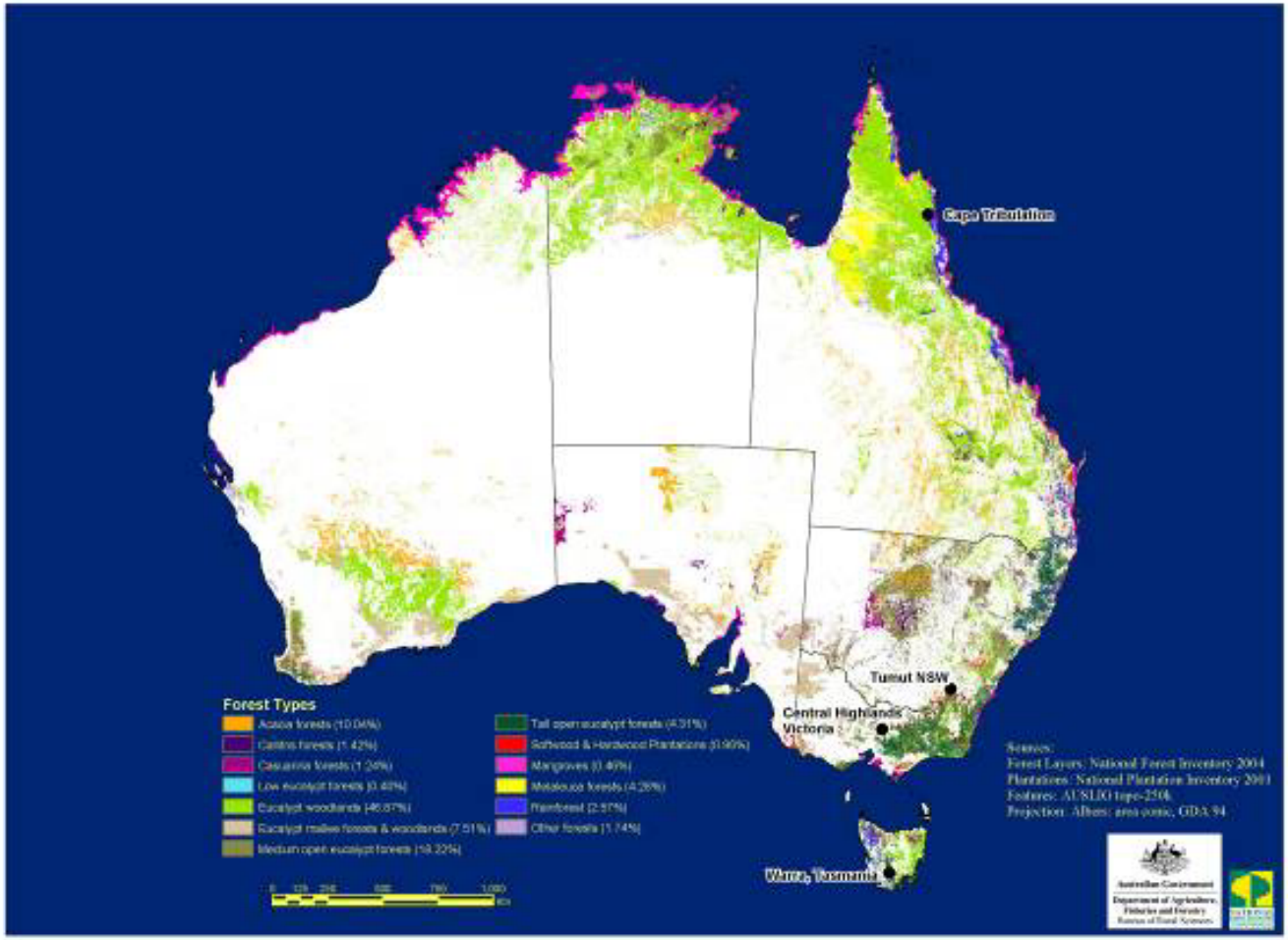
East Asia and Pacific Regional Network of ILTER (EAP-ILTER)

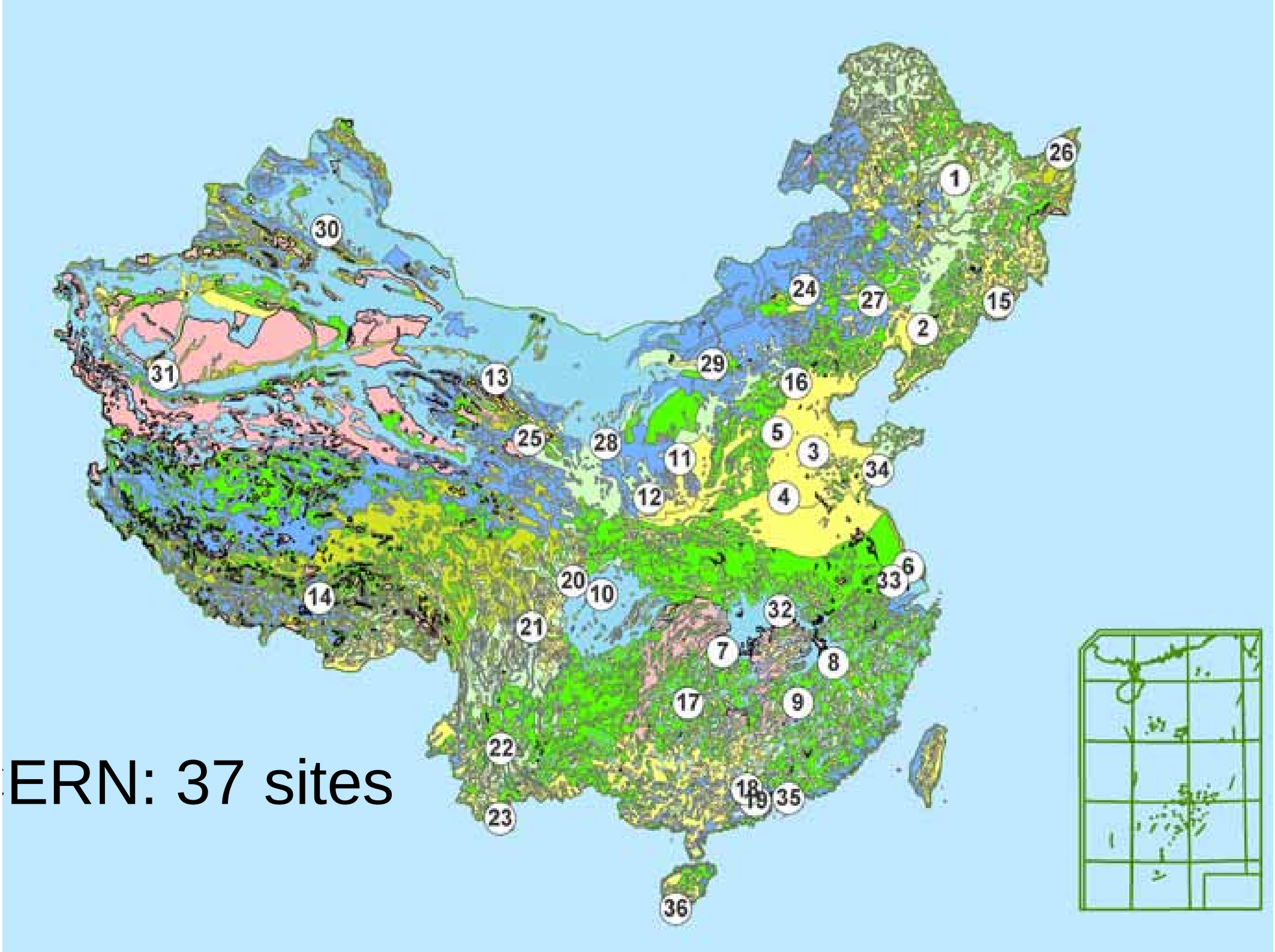
- 6 official member networks in Australia, China (CERN and TERN), Japan, Mongolia and Thailand, including 76 sites, dealing with terrestrial and aquatic ecosystems;
- Philippines and Malaysia are preparing to join it now;
- It is the most active one in the regional networks.

Australian LTER Network

4 sites

-Cape Tribulation
-Central Highland
-Tumut
-Warra




ERN: 37 sites
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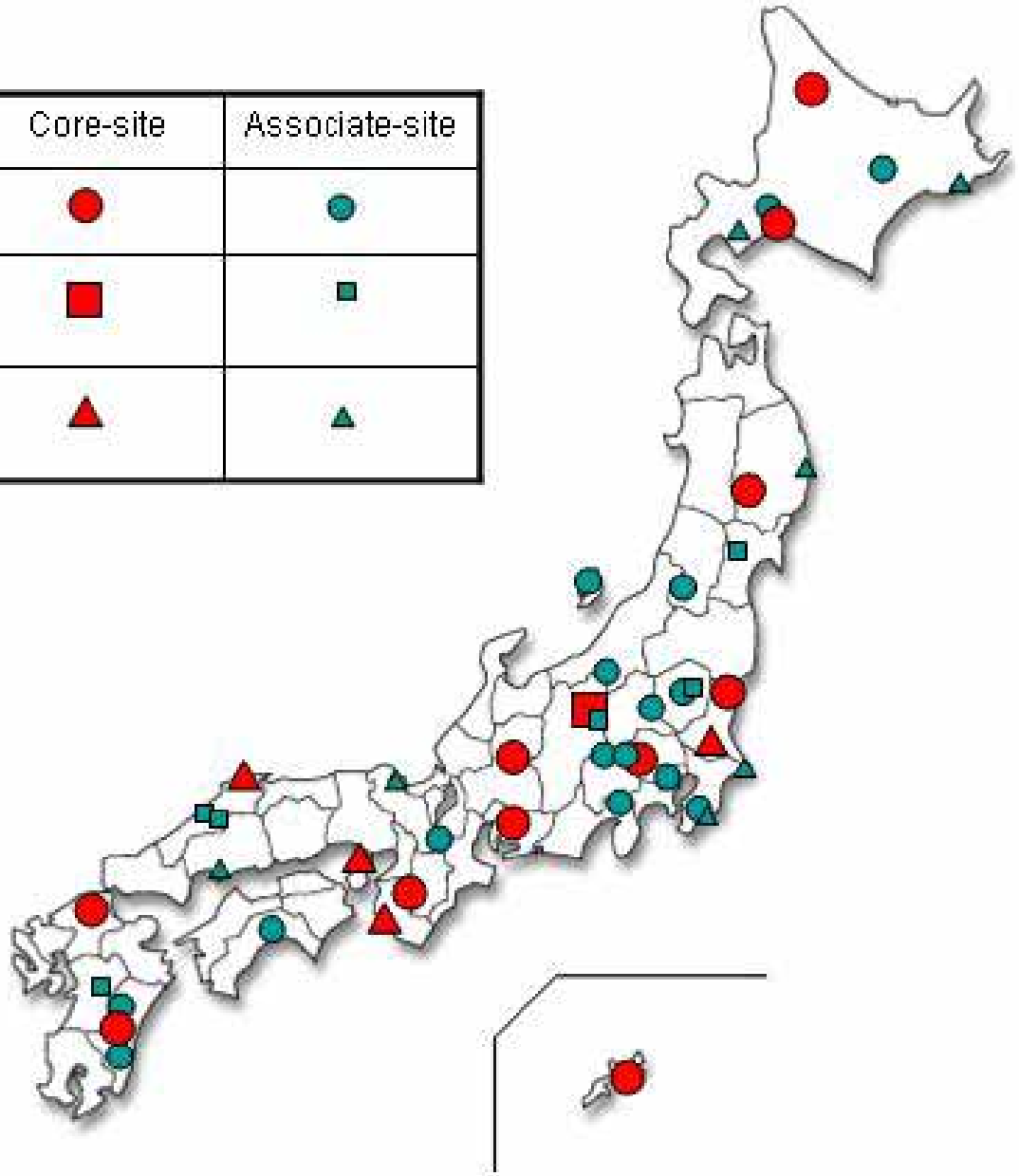
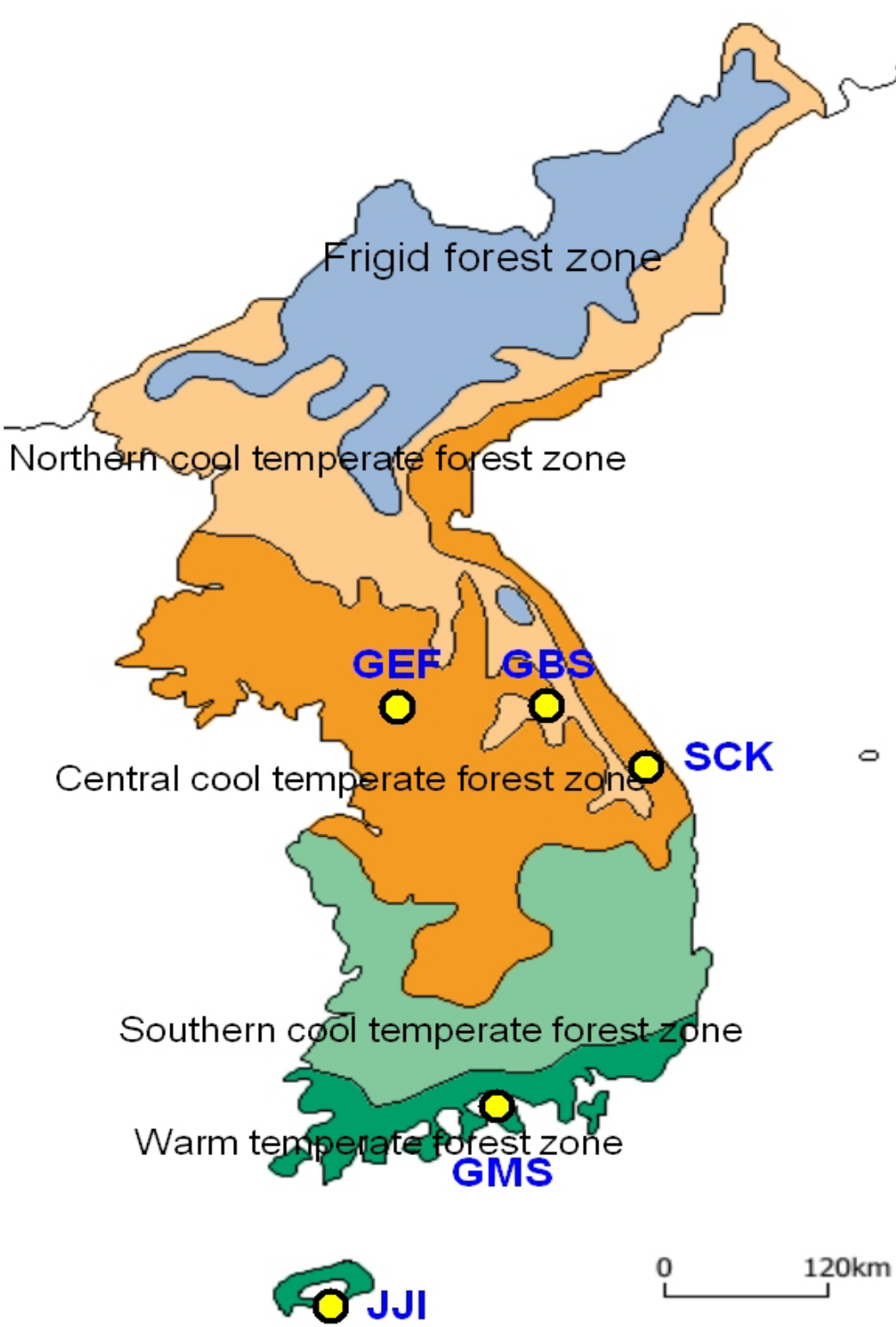
	Core-site	Associate-site
Forest	●	●
Grass land	■	■
Lake and estuary	▲	▲



JaLTER site network (April 2008)



Forest zones of Korean Peninsula and location of KLTER sites

- GEF: Gwangneung Experiment Forest
- GBS: Mt. Gyebangsan
- GMS: Mt. Geumsan
- SCK: Samchuk
- JJI: Jejudo Island

Mongolian Long Term Ecological Research (MLTER) Network

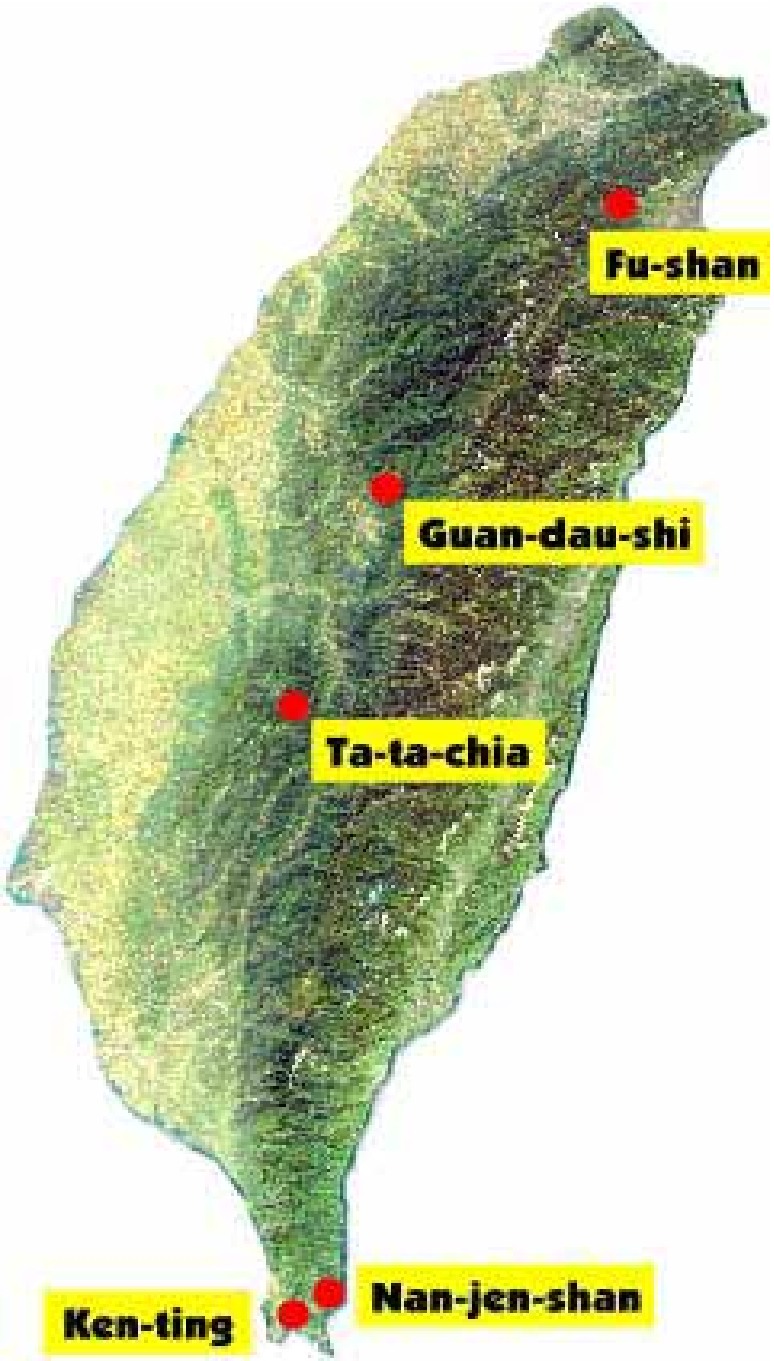
1 site: Hovsgol national lake

(potential sites could include steppe grassland and desert sites)

Taiwan Ecological Research Network (TERN)

5 Sites:

- Fushan Forest
- Guan-dau-shi Forest
- Nan-jen-shan Forest
- Ta-ta-chia Forest
- Yuan-yang Lake



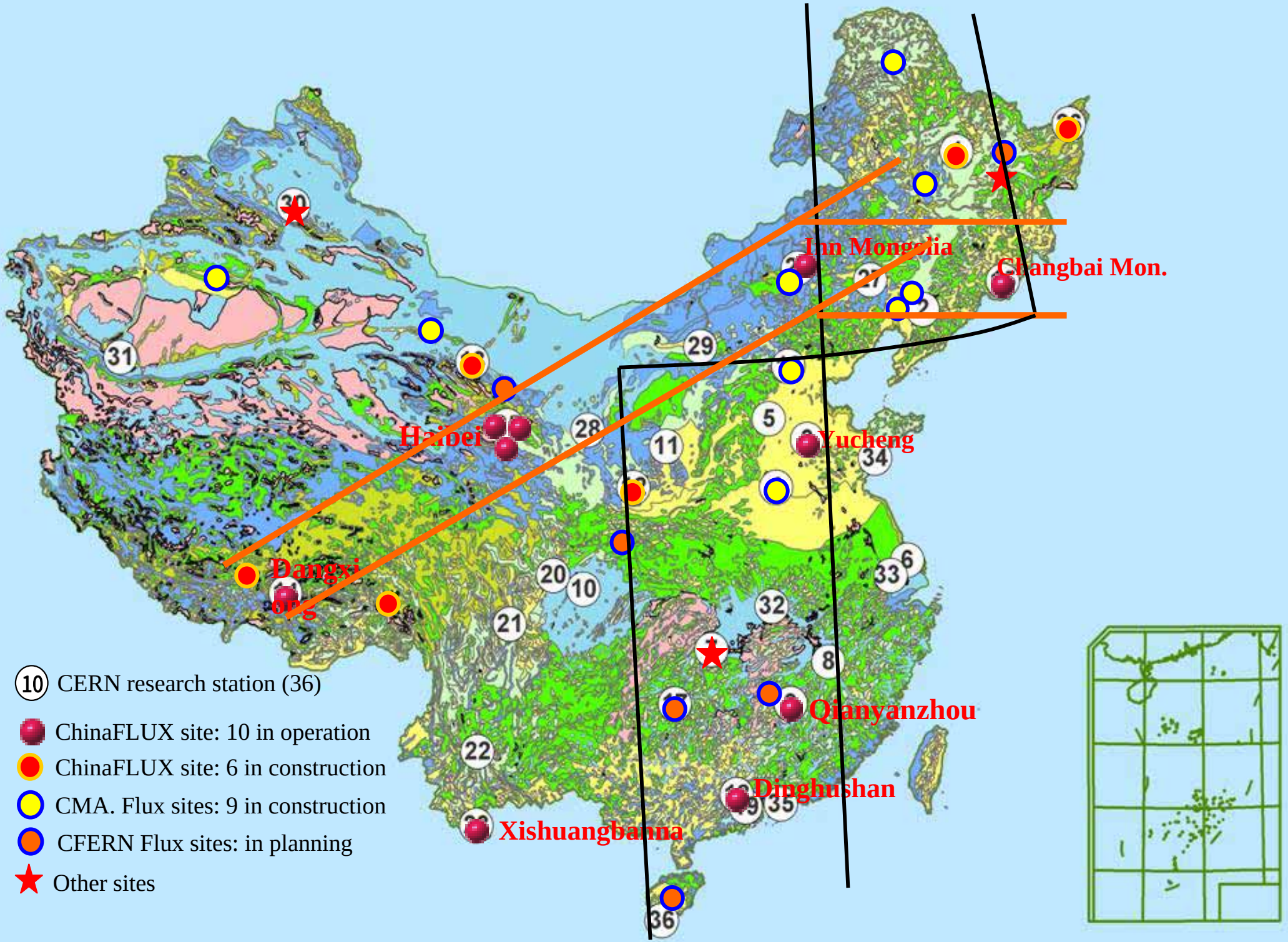
Thailand LTER: 10 sites

Goals and key issues of EAP-ILTER

- Implementing the goals and key issues;
- Capacity building at national level;
- Especially, developing regional IMS;
- Find raising and develop a core program.

Key issues of CERN

- Effects of climate change to the pattern of ecosystems
- Effects of climate change to the biogeochemical cycles
- Effects of climate change to biodiversity
- Responses and adaptation of ecosystem to climate change


Inn Mongolia
Changbai Mon.
Haibei
Yucheng
Dangxi
Qianyanzhou
Dinghushan
Xishuangbanna
10 CERN research station (36)
ChinaFLUX site: 10 in operation
ChinaFLUX site: 6 in construction
CMA. Flux sites: 9 in construction
CFERN Flux sites: in planning
Other sites

温带针茅草原

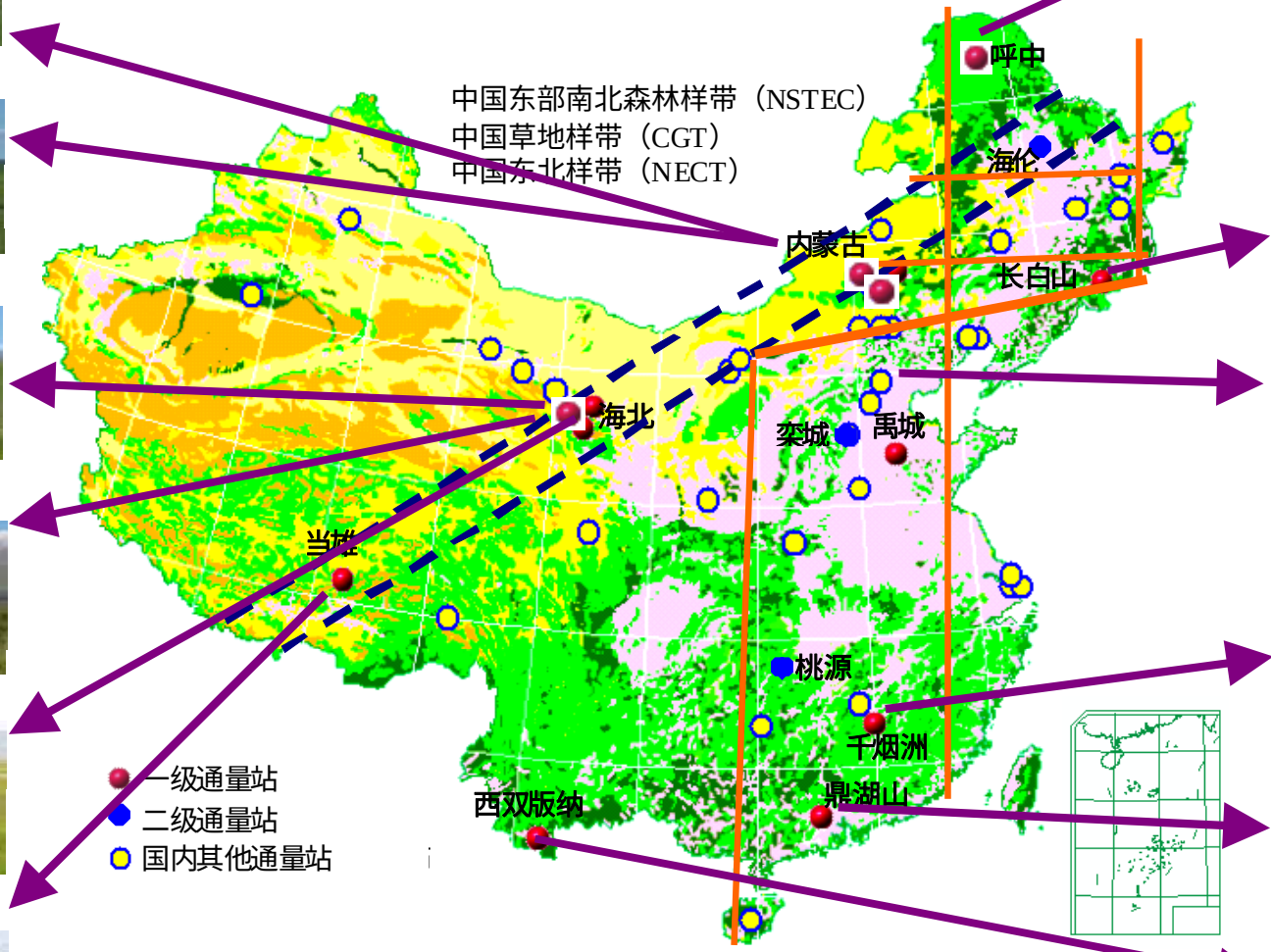
温带羊草草原

高寒草甸

高寒灌丛

高寒湿地

草原化高寒草甸



寒温带明亮针叶林

温带针阔叶混交林

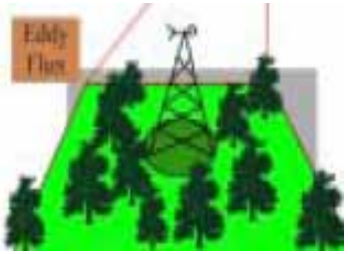
暖温带落叶阔叶林

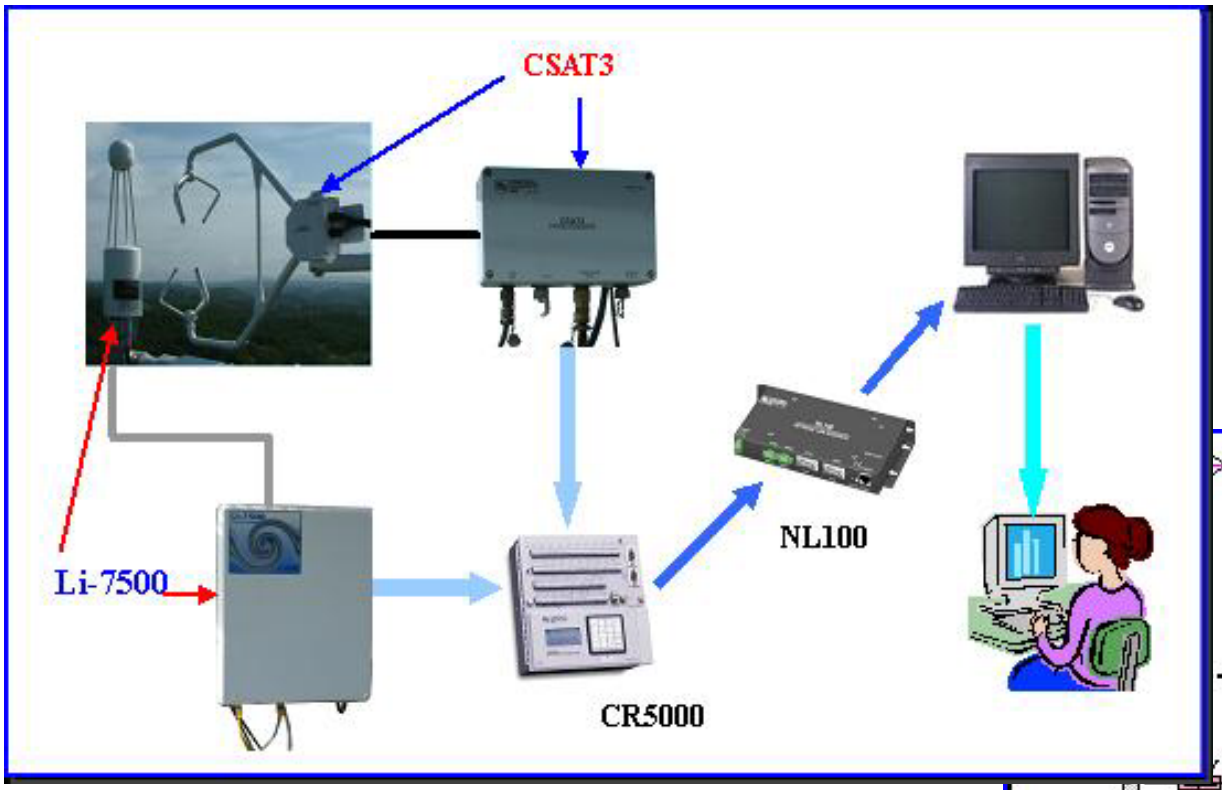
亚热带常绿阔叶林

南亚热带常绿阔叶林

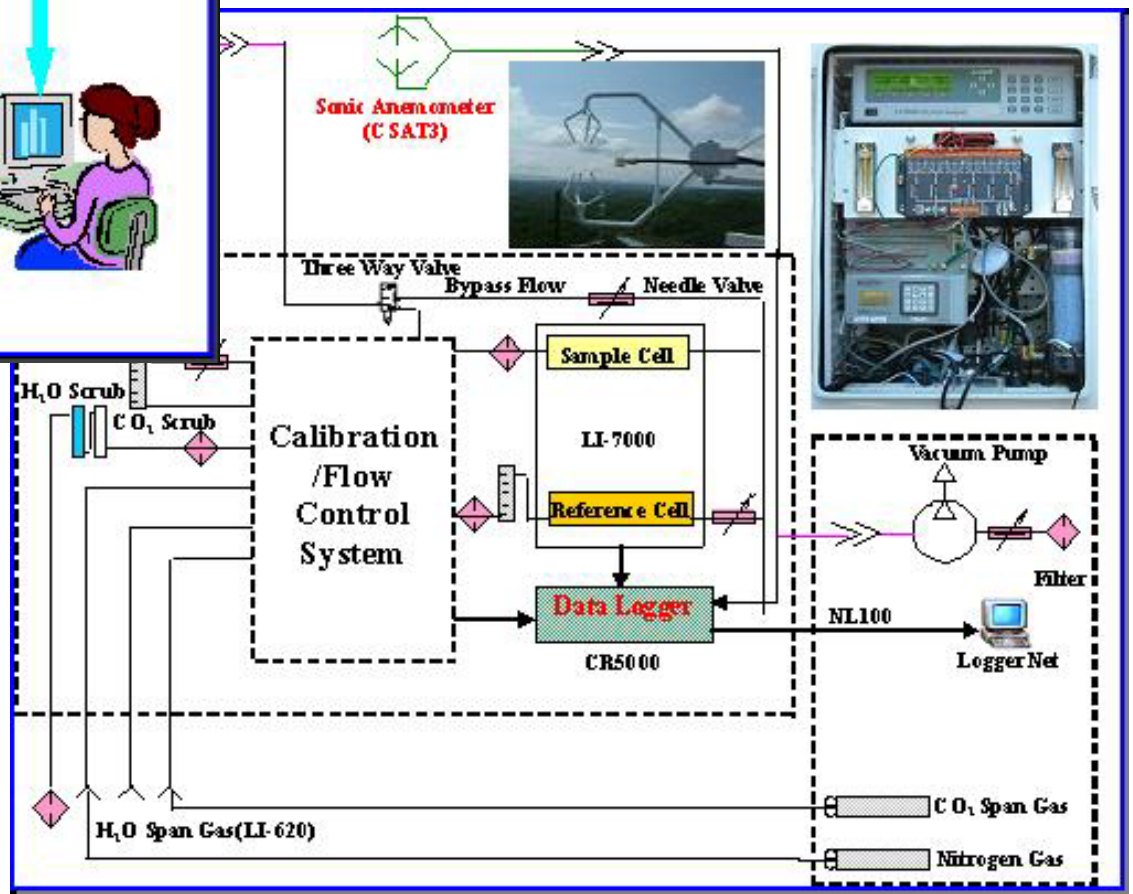
热带雨林

Chinese Terrestrial Ecosystem Flux Network
(ChinaFlux)





Close-path Eddy Covariance System (CPEC)



Open-path Eddy Covariance System (OPEC)

Changbai Mountain Station

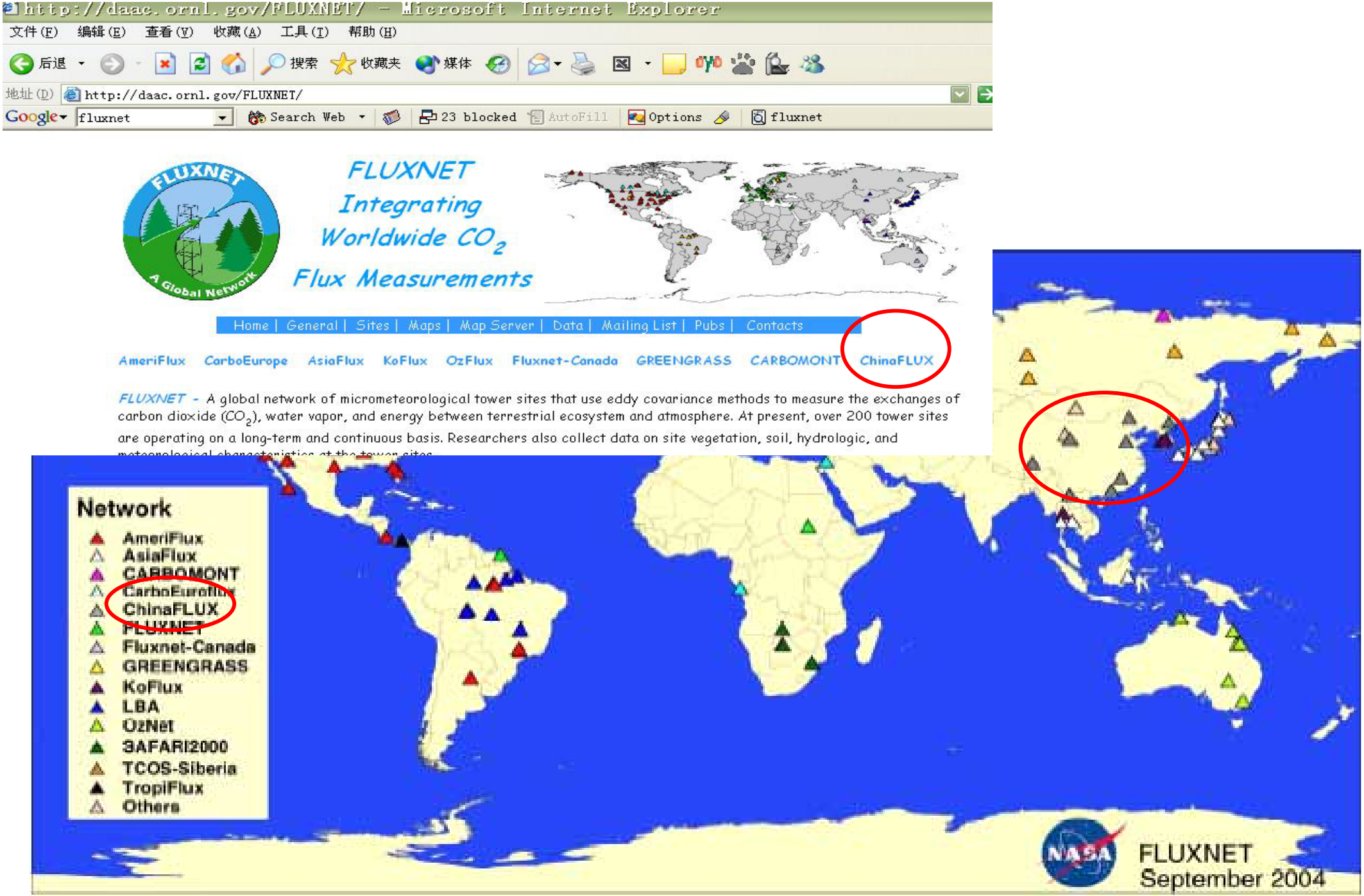
Height: 62.8 m

Grassland in Inner Mongolia

Haibei Grassland Station

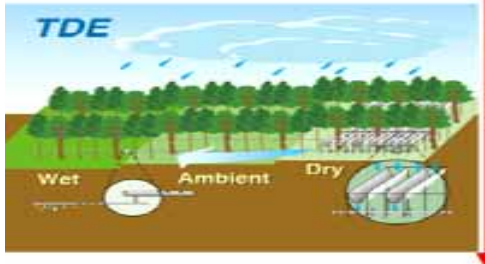
Dangxiong at Tibetan Plateau

ChinaFlux has been registered in FLUXNET



南北样带森林生态系统降水试验

温度梯度



温带落叶阔叶林
(-1.2 °C,长白山)

暖温带落叶阔叶林
(4.8 °C,东灵山)

南亚热带常绿阔叶林(21.4 °C,鼎湖山)

-30%	对照	+30%
+N	+N	+N

-30%	对照	+30%
+N	+N	+N

-30%	对照	+30%
+N	+N	+N


控
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涡度相关系统


放牧实验平台


全球变化控制实验平台


生物多样性与生态系
统功能实验平台

Treatment layout for every block

X01 F1 N28 MC	X02 F2 NC MC	X03 F4 N5 M31	X04 F1 NC M10	X05 FC N1 M31	X06 F1 N17 M10	X07 F6 NC M31	X08 F1 N5 M31	X09 FC N5 MC
X10 F4 N5 M11	X11 TBD	X12 F2 N17 M31	X13 F6 N5 M11	X14 F6 N28 M11	X15 F1 N28 M10	X16 F2 N28 M10	X17 F 2N17 MC	X18 F4 NC M31
X19 FC N17 M11	X20 FC N28 MC	X21 F2 N5 M11	X22 F2 N28 M31	X23 F2 N5 MC	X24 FC N17 M10	X25 F2 N5 M10	X26 F4 N28 MC	X27 F1 N5 MC
X28 F1 N5 M10	X29 F6 NC M10	X30 F2 NC M11	X31 F4 N17 MC	X32 FC NC MC	X33 F2 NC M31	X34 F1 NC M31	X35 F4 NC M11	X36 F2 N17 M11
X37 F6 N17 MC	X38 F2 N17 M10	X39 F6 N5 M10	X40 F6 N5 M31	X41 FC N17 MC	X42 F4 N17 M11	X43 FC N28 M31	X44 F6 N5 MC	X45 F4 N28 M10
X46 F1 N28 M11	X47 F1 N17 M31	X48 FC N5 M31	X49 F1 N17 M11	X50 FC N28 M11	X51 F1 NC MC	X52 F6 N28 M10	X53 F4 N5 MC	X54 F4 N28 M31
X55 F6 N17 M11	X56 F2 N28 MC	X57 F2 N5 M31	X58 F1 N5 M11	X59 FC N5 M11	X60 FC N28 M10	X61 F4 N17 M10	X62 F6 NC M11	X63 F6 NC MC
X64 F4 N1 7M31	X65 F6 N17 M10	X66 F2 NC M10	X67 F6 N28 M31	X68 F2 N28 M11	X69 F4 N28 M11	X70 F1 N17 MC	X71 FC NC M10	X72 F1 NC M11
X73 FC N5 M10	X74 F4 N5 M10	X75 F1 N28 M31	X76 F6 N28 MC	X77 F6 N17 M31	X78 FC NC M11	X79 F4 NC MC	X80 FC NC M31	X81 F4 NC M10

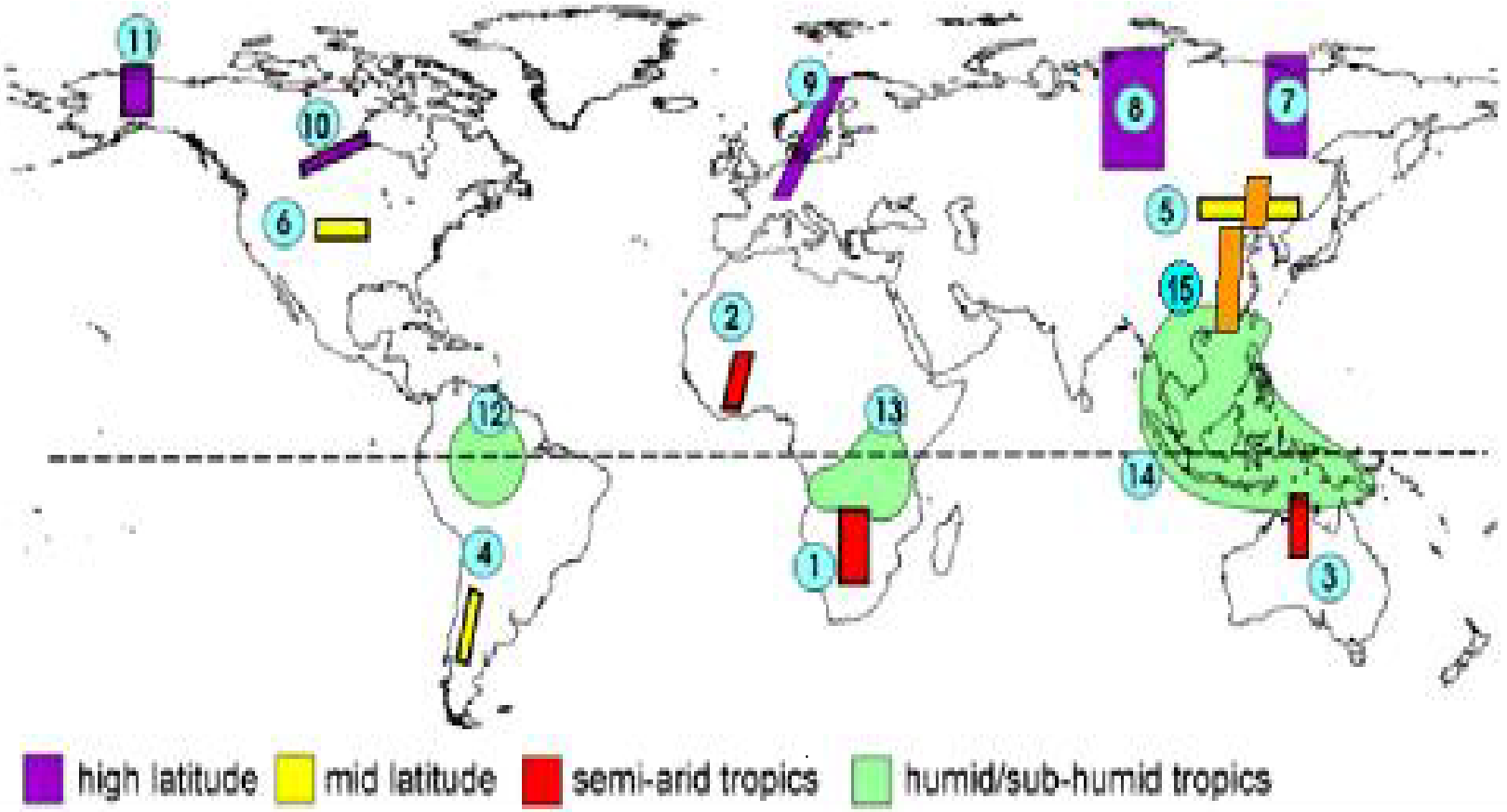
Notes:

X: block#, X = 1, 2, 3, ……, 9;
F*n*: to be burned every *n* yr, *n* = C (0), 1, 2, 4, 6;
N*m*: N addition rate at *m* N g m-2 yr-1; *m* = C(0), 5 (5.25), 17 (17.5), 28 (28.0);
M*l*: Mowing frequency, *l* = control (C), mowing once every year(10), 1 yr mowing + 1 yr rest(11), Mowing 3 yr + 1 yr rest(31).

Achievements of transect study in China

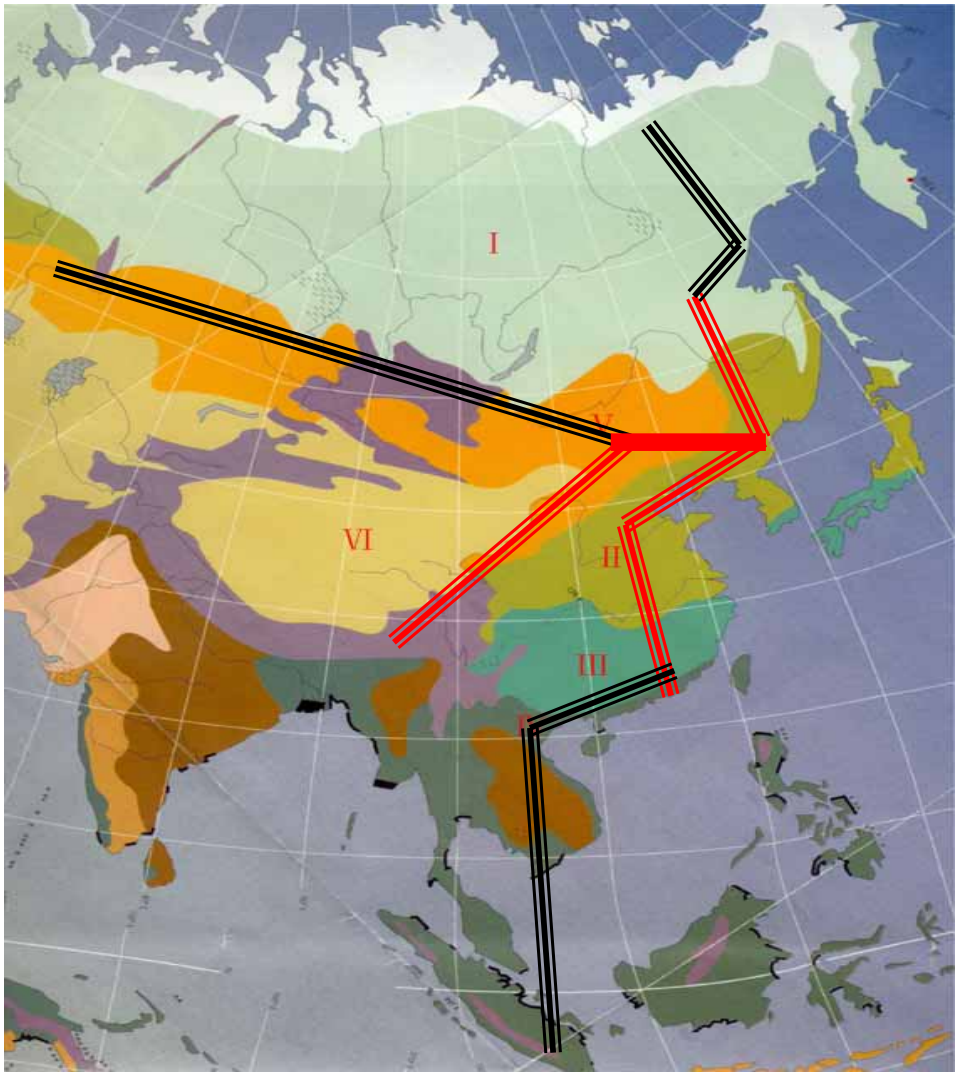
- Database development (vegetation, soil, climate, organisms etc.)；
- Experiments of environment factors and management practices；
- Models at various scales；
- Scenarios of ecosystems and biodiversities to global change；
- Papers.

GCTE/IGBP Terrestrial Transects



1 = Kalahari Transect (KALA)
2 = Savanna on the Long-Term (SALT)
3 = North Australian Tropical Transect (NATT)
4 = Argentina Transect
5 = North East Chinese Transect (NECT)
6 = North American Mid-Latitude Transect (NAMER)
7 = Siberia Far East Transect (SIBE)
8 = Siberia West Transect
9 = Europe Transect
10 = Boreal Forest Transect Case Study (BFTCS)
11 = Alaskan Latitudinal Gradient (ALG)
12 = Amazon (LBA)
13 = Miombo Woodlands Transect
14 = SE Asian Transect
15 = North-South Transect of Eastern China (NSTEC)

Proposal: transit study on effects of climate change to ecosystem and biodiversity cross the bioms from N. -- S. at regional level



Key issues of transit study on response and adaptation of ecosystems to climate change in East-Asia Region in current stage

- Biodiversity: species composition and distribution
- Ecosystems
  - Spatial pattern
  - Ecosystem services:
    - Productivity
    - Water
    - Carbon
    - Nitrogen
- Best use of data from both site- and space -based observation

News from Dr. T. Parr

- ILTER has applied to become a Participating Organization in GEO.
- As part of GEOSS, we have been beginning to work with GEO and Diversitas on a plan to establish a Global Biodiversity Observation Network (GEO-BON). This would cover both ecosystems and biodiversity.
- He attened a meeting on GEO-BON in Berlin on 8th April.
- Related to IPCC, we are also working with UNEP to try and establish a "Global Climate Change Adaptation Network" using ILTER sites as a framework for this.

ILTER Information Management Workshop on Ontology/EML Integration

- Time: April 7-12, 2008
- Location: Lake Taihu Field Station, China
- Participants: 15 experts from Austria, China, Denmark, Israel, Japan, Netherlands and U.S.A.
- Outputs:

  1) Best practices/recommendations document to ILTER networks, regarding what information management approach to take when developing an IMS;

  2) Proposal outline;

  3) A paper defining the most urgent research questions related to the management of ecological data.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2008/01/25


THANKS !