

Land Cover Data and Desertification Data of Asia



Ryutaro Tateishi
Center for Environmental
Remote Sensing (CEReS)
Chiba University

E-mail: tateishi@ceres.cr.chiba-u.ac.jp
Tateishi Lab. URL: <http://asiaserv.cr.chiba-u.ac.jp/frame.htm>

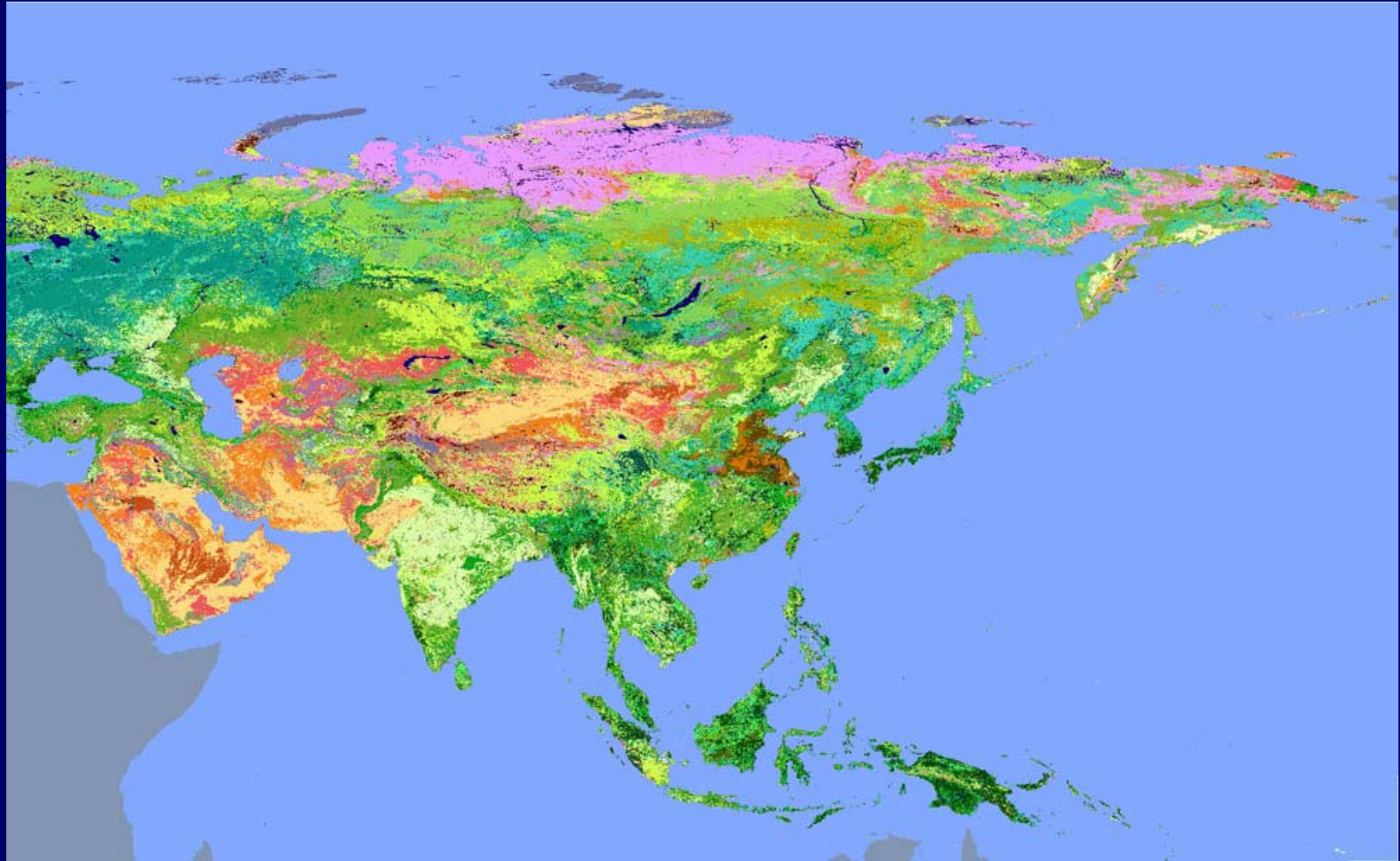
Outline

- (1) Land cover dataset (Asia)**
- (2) Desertification map data (Asia)**
- (3) Twenty-year global 4-minute AVHRR NDVI dataset (global)**
- (4) Land cover ground truth database (global)**

(1) Land cover dataset (Asia)

- Developed by AARS Land Cover WG
(1993 – 1999)**
- Hierarchical land cover legend (32 classes)**
- 30 arc second (1 km)**
- Source information: AVHRR NDVI & Ts
1992**
- Processing: clustering of monthly Ts/NDVI**
- Ground truth: mainly from existing maps**

Land Cover of Asia (by AVHRR 1992)



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Desertification

“land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climate variations and human activities”

by International Convention to Combat Desertification (CCD) 1994

Desertification mapping (Asia)

classification system of land degradation

Land use type(5): **Forest/woodland, Rangeland and meadow, Dry agriculture, Irrigation agriculture, Dried up sea level**

Land degradation type(6): **Degradation of vegetaion cover, Water erosion, Wind erosion Salinization of irrigated soil, Waterlogging of rangeland, Salinization of dried up sea floor**

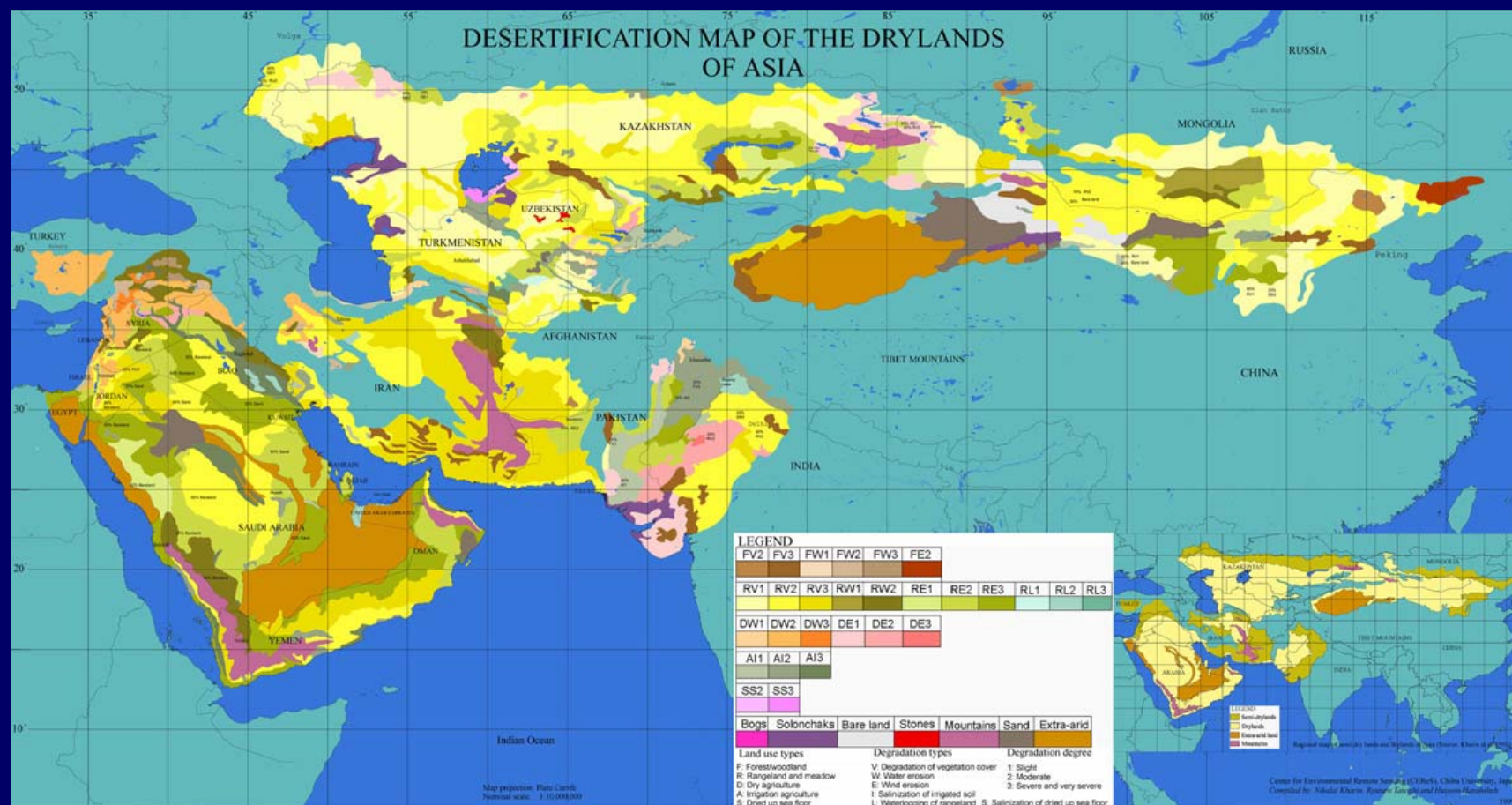
Degradation degree(3 or 4): **Slight, Moderate, Severe and very severe**

Mapping method

manual delineation of classified unit by experts using

- 660 ground truth points,
- clustering results of AVHRR NDVI,
- land cover map, and
- other existing local land cover maps

Desertification Map of the Drylands of Asia



Land use type: Forest/woodland, Rangeland and meadow, Dry agriculture, Irrigation agriculture, Dried up sea level

Land degradation type: Degradation of vegetaion cover, Water erosion, Wind erosion

Salinization of irrigated soil, Waterlogging of rangeland, Salinization of dried up sea floor

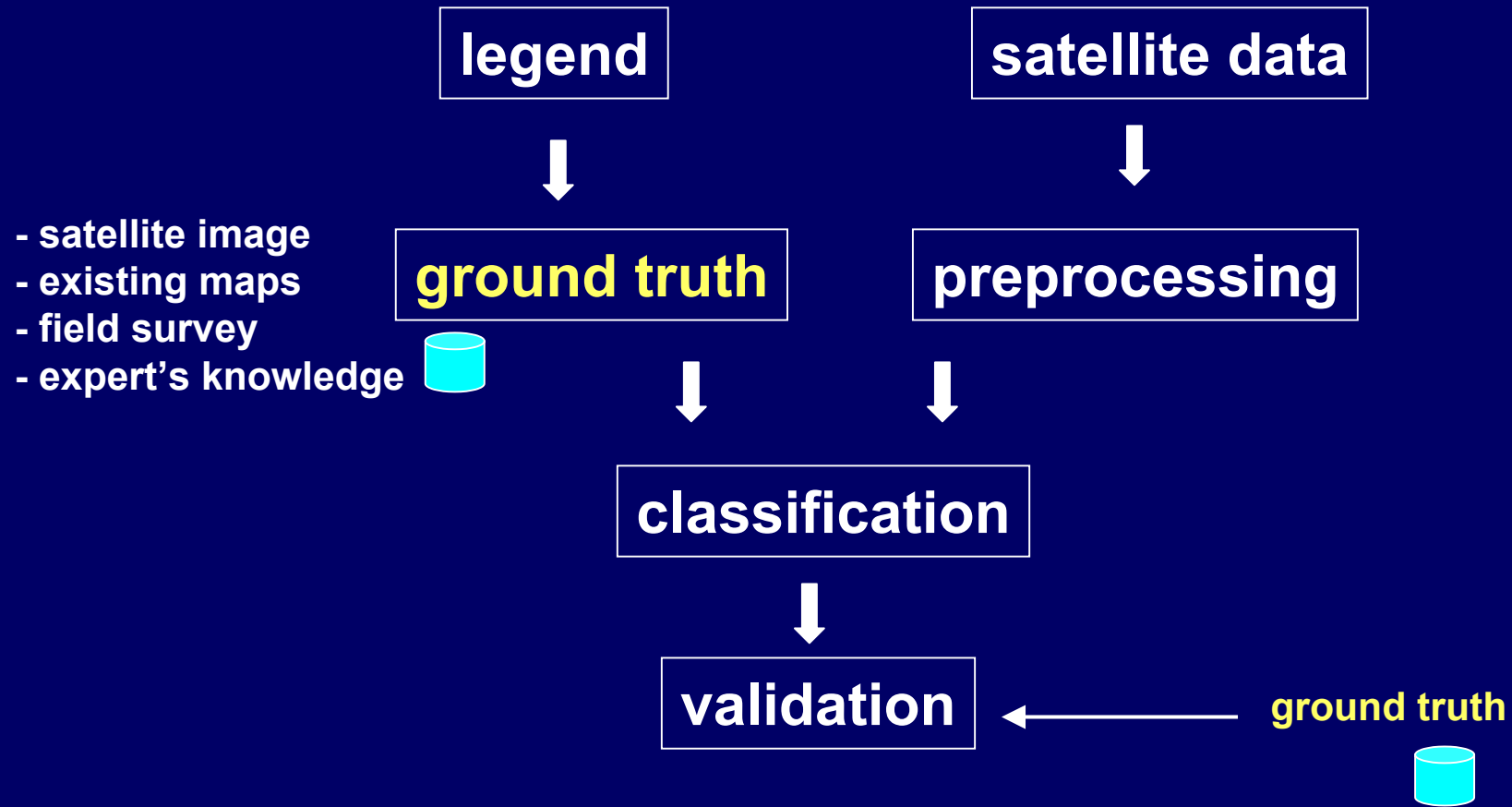
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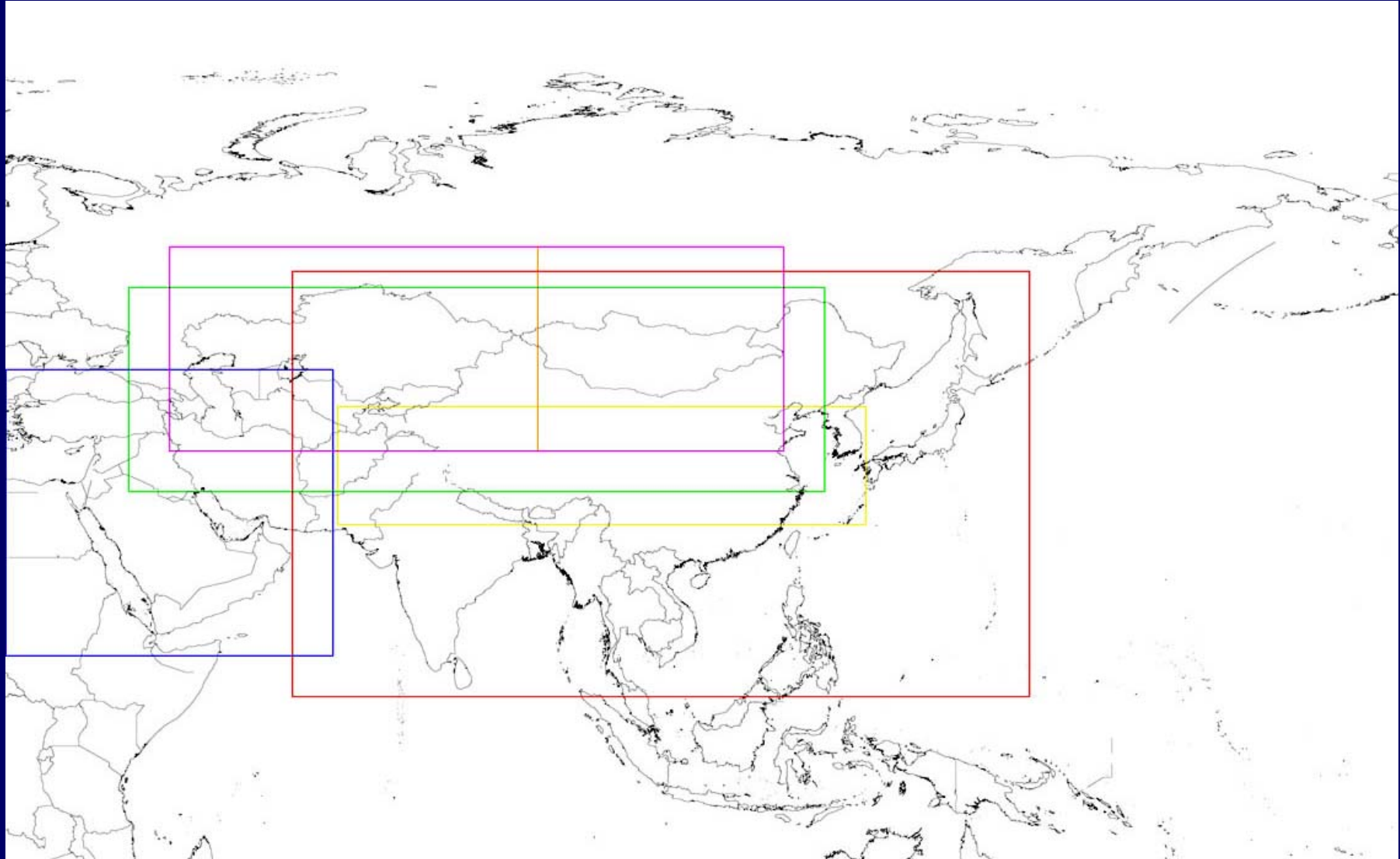
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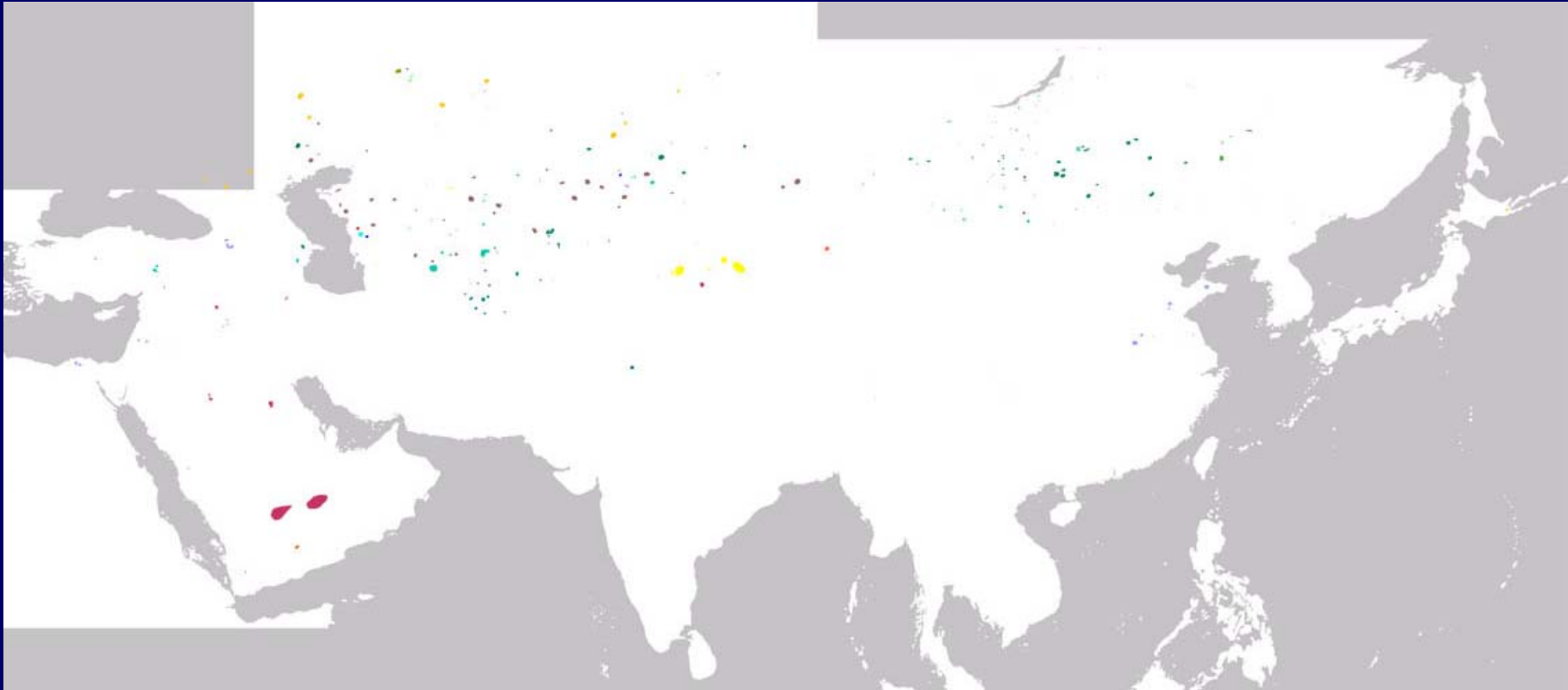


Flow of Land Cover Classification

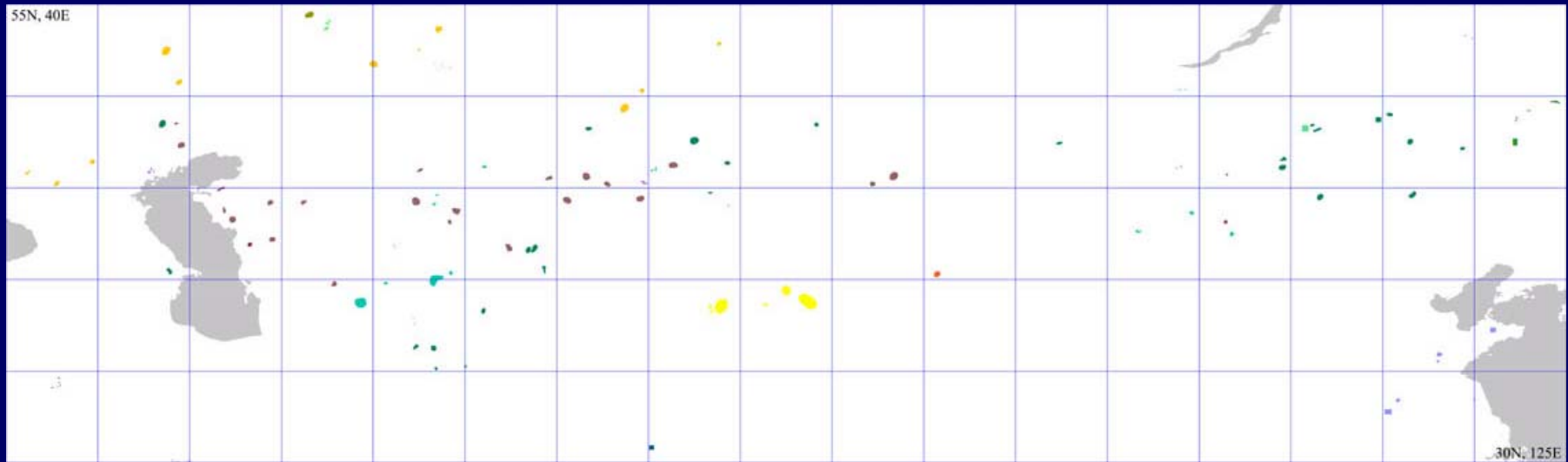
Regional Land Cover Ground Truth Area



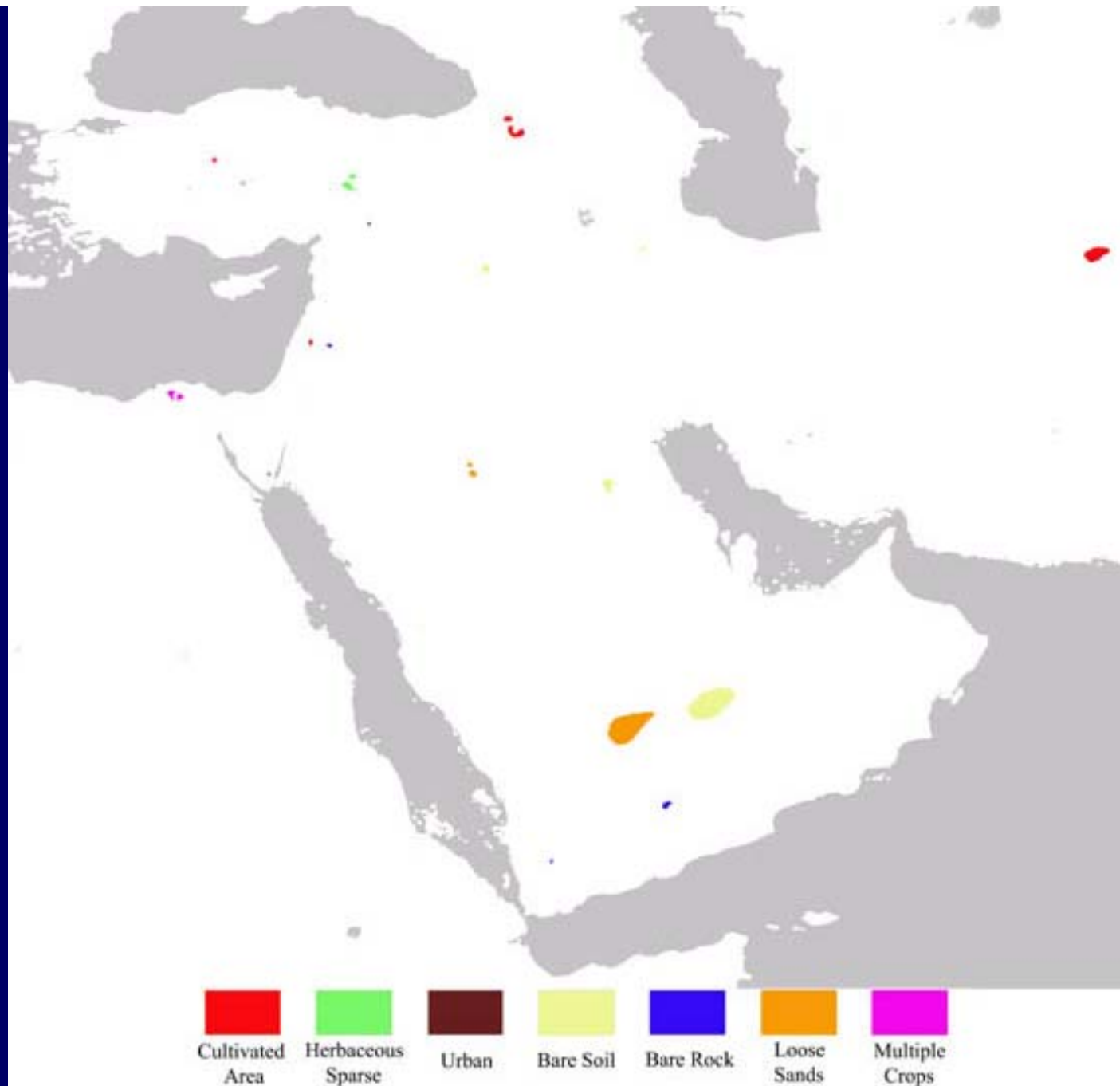
Land Cover Ground Truth sites



Ground Truth of Central Asia

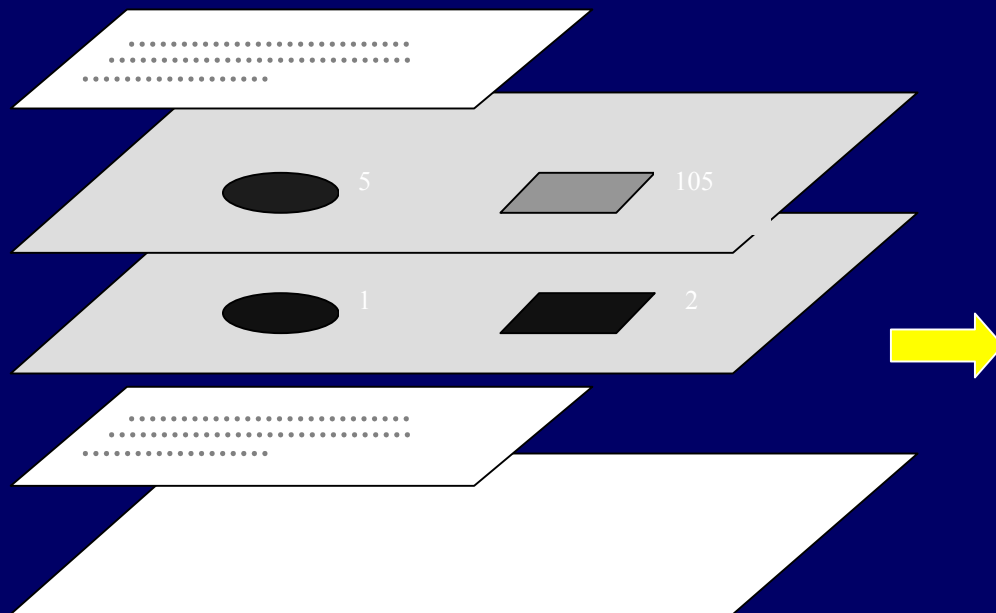


Ground Truth of Middle East



Proposal of Global Land Cover Ground Truth (GLCGT) database

Global LCGT database consists of multiple Regional LCGT data



Metadata of Regional LCGT data

Ground truth (GT) land cover code data

Ground truth (GT) site code data

Description of GT sites

Optional data

Structure of Regional LCGT data

Example of Description of ground truth (GT) sites

Site code: 4
Lat/long: N43d18', E141d45'
Land cover code: 1
Land cover: Paddy (70%) and soybean (30%)
Information source: Land use map 1:200,000, 1982 (By Geographical Survey Institute, Japan) + Knowledge (Tateishi and Hongo)

Site code: 17
Lat/long: N43d39'37", E127d22'55"
Land cover code: 209
Land cover: Rice and corn
Information source: Field survey, Jul-Aug 2001 (Zhu) (FS -Point No. 20)

Site code: 34
Lat/long: Northwest direction from N53d53', E109d57.7'
Land cover code: 203
Land cover: Bare area (Mountain top), Barguzin Mountain
Information source: Field survey, Aug. 2000 (Tateishi) (FS-Point No. 24) + Topographic Map, USSR, 1:200,000 (Survey 1982~1984, published 1997)

(1), (3), and (4): Download from
<http://www.cr.chiba-u.jp/database.html>

- (1) Land cover dataset (Asia)** **CD**
30-second lat/long grid data
- (2) Desertification map data (Asia)** **email**
4-minute lat/long grid data
- (3) Twenty-year global 4-minute AVHRR**
NDVI dataset (global) **CD**
4-minute lat/long grid data
- (4) Land cover ground truth database (global)**
30-second lat/long grid data **CD**

Related activity by ISPRS WG IV/8 on “Global environmental databases”

Comparison

Digital Asia

ISPRS WG IV/8

Asia

Global

any spatial coverage

global coverage

**Spatial Data
Infrastructure**

Data Production

Book "Global Environmental Databases"

Vol.1

Vol.2

Part 1 Thematic domains

Reference of framework

Climatic data

Topographic data

Livestock data

Oceanographic data

Land use data

Land Cover data

Biophysical data

Biodiversity data

Soil data

Hydrological Data

Part 2 Cross-cutting issues

Geometric registration

Remote sensing data

Meta data

Spatial information infrastructure

Cultural bias

Bridging the gap between

environmental databases and policy

Global Environmental Databases

Vol. 1 & 2

available from

Geocarto International Centre,
Hong Kong

website:

<http://www.geocarto.com>

or

GITC (the Netherlands)



GLOBAL ENVIRONMENTAL DATABASES

- Present Situation; Future Directions -



Edited by
R. Tateishi and D. Hastings

Thank you



Ryutaro Tateishi
Center for Environmental
Remote Sensing(CEReS)
Chiba University

E-mail: tateishi@ceres.cr.chiba-u.ac.jp

Tateishi Lab.URL: <http://asiaserv.cr.chiba-u.ac.jp/frame.htm>