



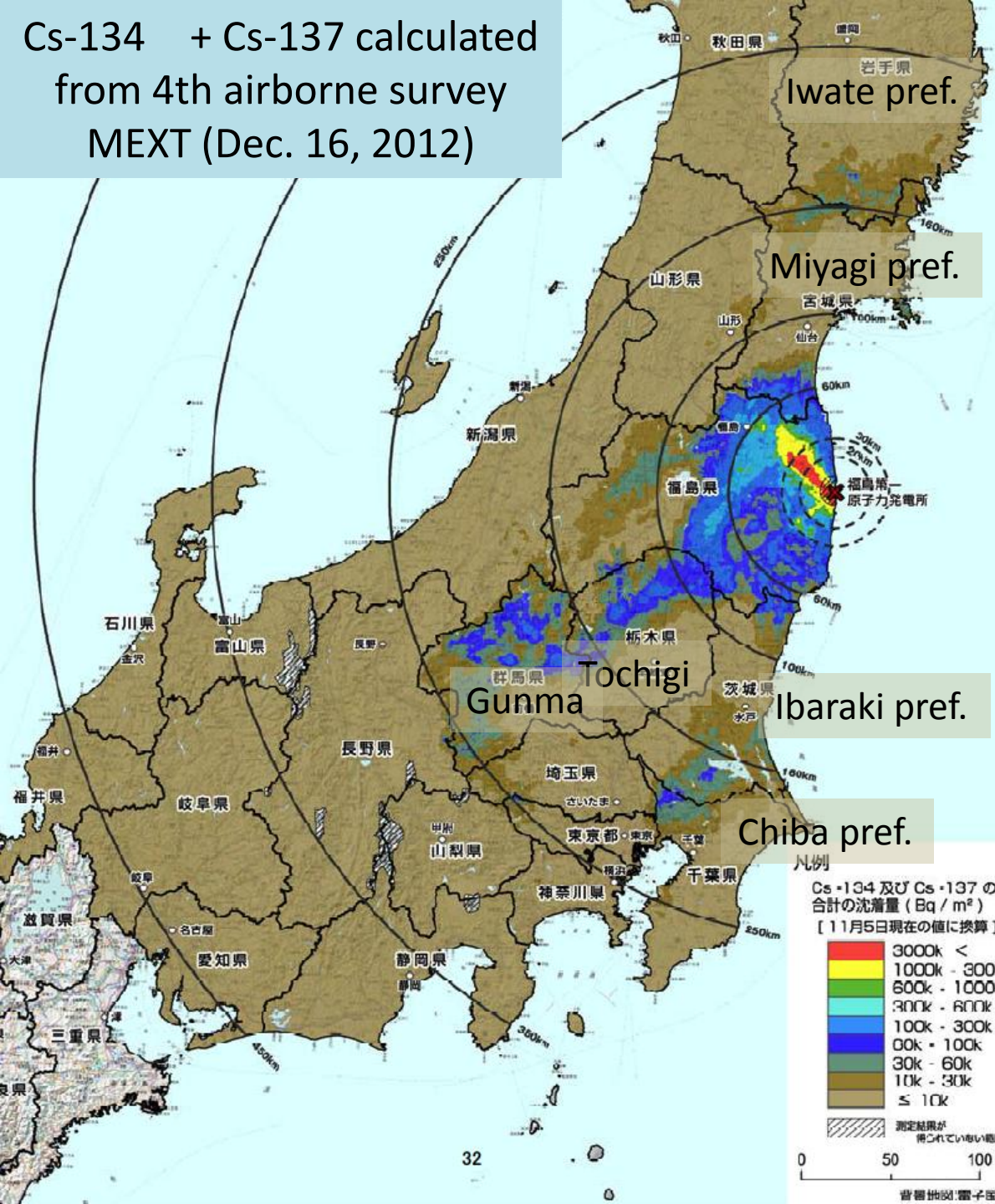
Research activities related to the Fukushima Daiichi accident at IER

Fukushima University

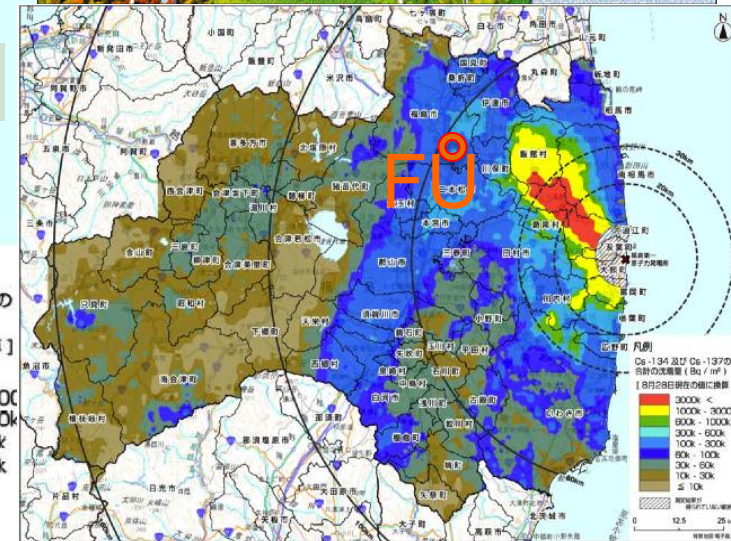
Institute of Environmental Radioactivity (IER)

NANBA Kenji

Cs-134 + Cs-137 calculated from 4th airborne survey MEXT (Dec. 16, 2012)



← Not only Fukushima pref.

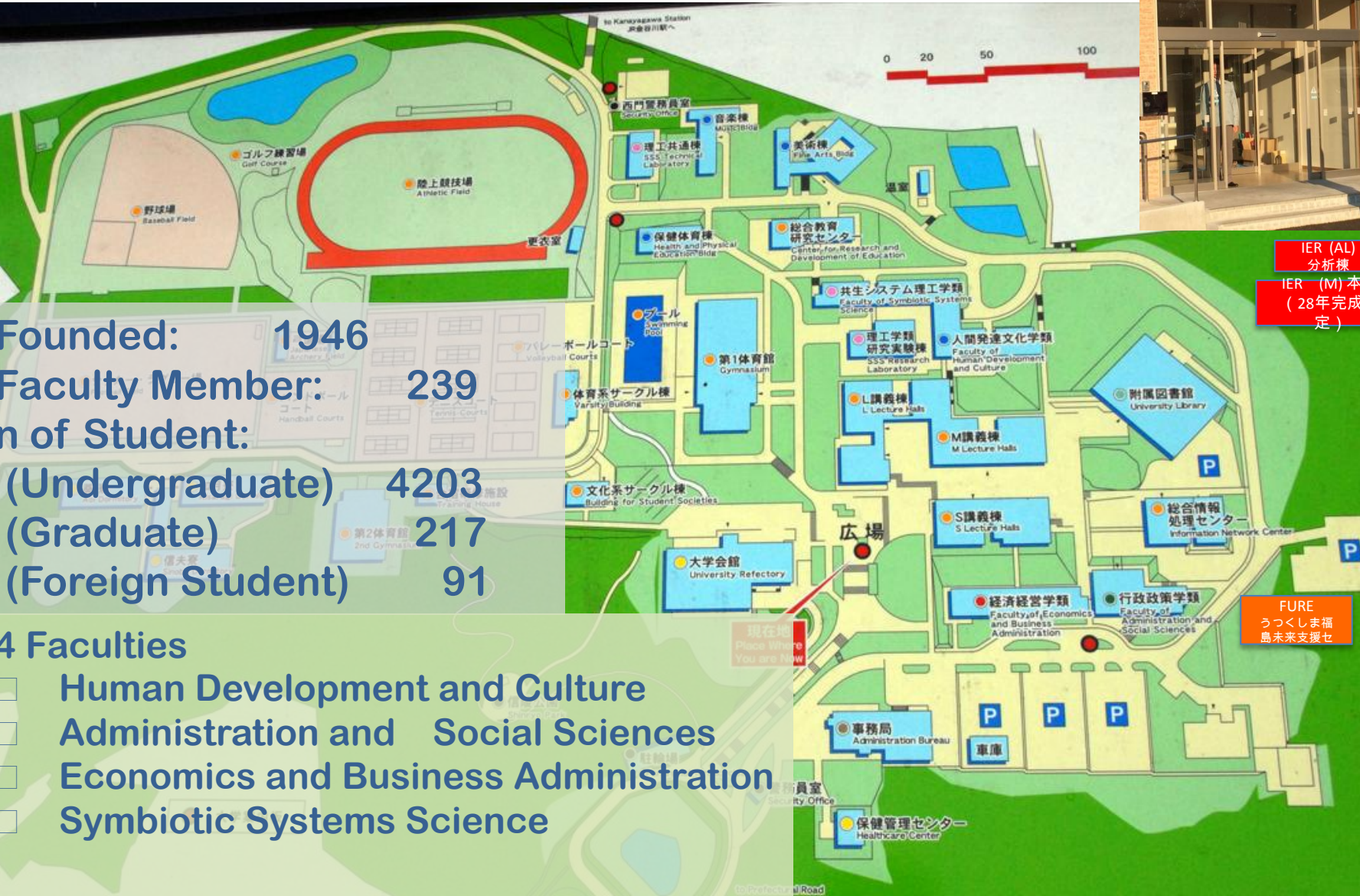


Cs-134 及び Cs-137 の合計の沈着量 (Bq/m²)
 [11月5日現在の値に換算]
 3000k <
 1000k - 3000k
 600k - 1000k
 300k - 600k
 100k - 300k
 00k - 100k
 30k - 60k
 10k - 30k
 ≤ 10k

Cs-134 及び Cs-137 の合計の沈着量 (Bq/m²)
 [8月28日現在の値に換算]
 3000k <
 1000k - 3000k
 600k - 1000k
 300k - 600k
 100k - 300k
 00k - 100k
 30k - 60k
 10k - 30k
 ≤ 10k

↑ Deposition following the topography

IER Buildings: Analytical Lab.(AL)・ Main (M)



IER (AL)
分析棟
IER (M) 本棟
(28年完成予定)

FURE
うつくしま福
島未来支援セ

Founded: 1946
Faculty Member: 239
Number of Student:
(Undergraduate) 4203
(Graduate) 217
(Foreign Student) 91

4 Faculties

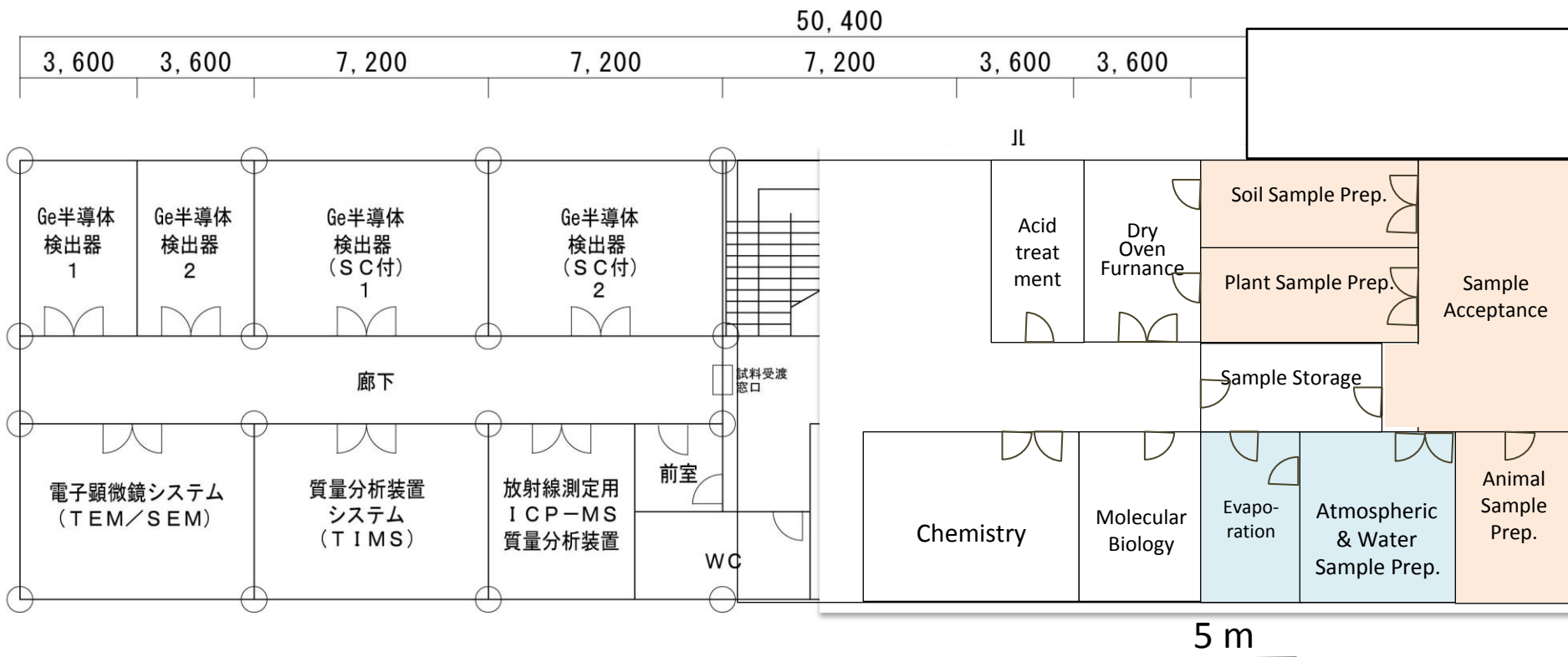
- Human Development and Culture
- Administration and Social Sciences
- Economics and Business Administration
- Symbiotic Systems Science



Facilities of IER

1st Building (~1400 m²) ... finished in Jul. 15th, 2014
 Sample prep rooms. HPGe, MS etc.

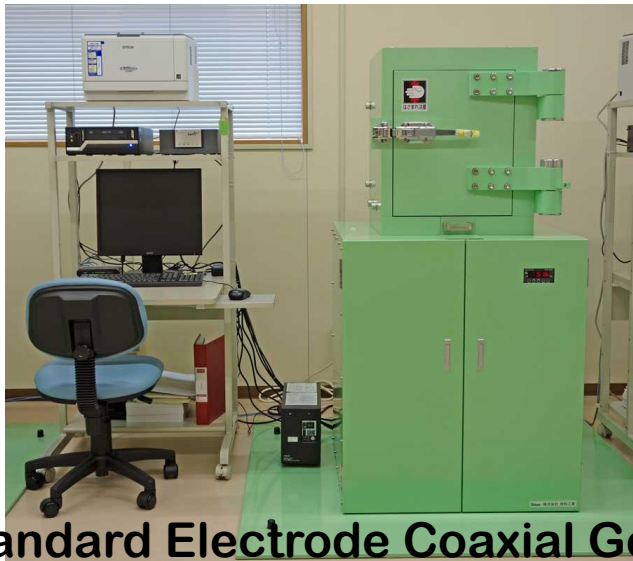
2nd Building (4500 m²) ... finished by Aug. 2016
 Sample archive rooms. Independent labs for teaching staff



Gamma-ray Spectroscopy



Standard Electrode Coaxial Ge Detectors (with auto-sampler)
50 samples on the table



Standard Electrode Coaxial Ge Detectors (stand-alone)



Ultra low background Ge detector
(well type 150mL)

Extended Range Coaxial Ge Detectors
(for Low energy range)

Alpha-ray Spectroscopy
Beta-ray Spectroscopy

Mass Spectroscopy

X-ray analysis

Electron microscopy
(for measurement of heterogeneous micr

Hydrology Discharge of radioactive substance from land to aquatic system

プロジェクト・リーダー：恩田裕一（副所長，筑波大学）

- ① 小流域における陸域からの放射性物質の移行状況の把握とメカニズム解明
- ② 浜通り諸河川における放射性物質の移行状況の把握とモデル化
- ③ 河川水の溶存体の原位測定法の開発と河川水の放射性物質濃度の連続モニタリング

Forest Long-term behavior of radiocesium in forest environment

プロジェクトリーダー：難波謙二（副所長，福島大学），恩田裕一（副所長，筑波大学）

- ① 放射性物質の移行と蓄積に関する長期的観測とそのメカニズム解明
- ② 森林における放射性核種の移行予測モデル開発とパラメータの収集・整理
- ③ 森林生物の被ばく線量評価の高精度化と放射線影響評価

Marine Radiocesium in near shore marine ecosystem off Fukushima coast

プロジェクト・リーダー：石丸隆（連携研究員，東京海洋大学）

- ① 放射性物質の海底および海洋生物への移行過程の解明
- ② 河川から海域への放射性物質の流入過程の解明

Ecosystem Radioactive substance in Ecosystem and its influence on organisms

プロジェクト・リーダー：難波謙二（副所長，福島大学）

- ① 農業および河川・湖沼環境における生物への放射性物質移行メカニズム解明
- ② 放射線の生物への影響に関する研究

Development of new technique

New measurement and sampling system

プロジェクト・リーダー：高橋隆行（所長，福島大学）

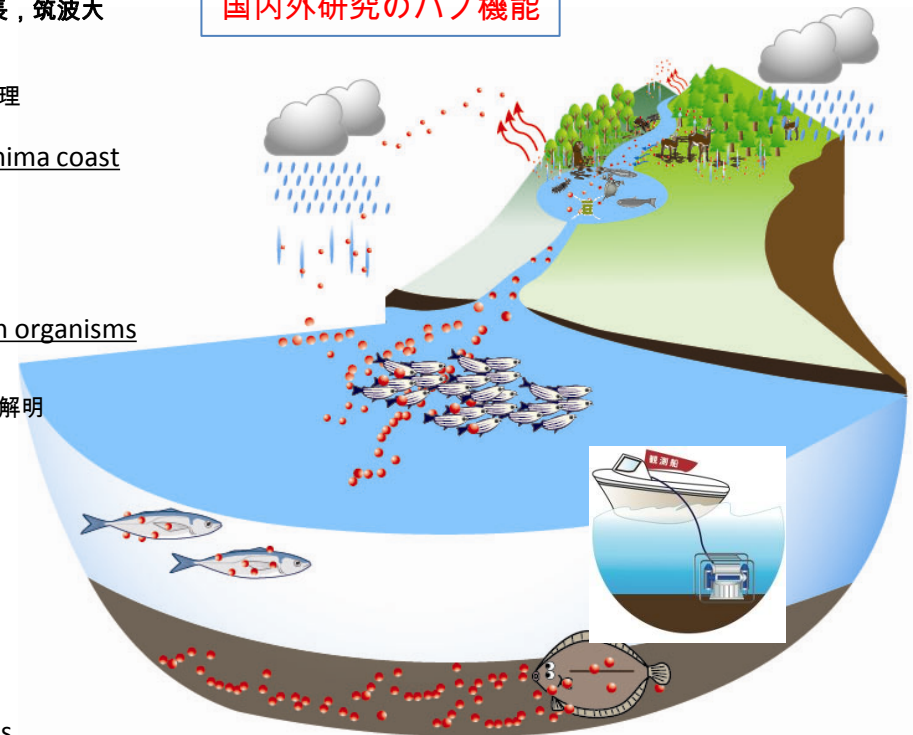
- ① 放射性核種の高速分析システムの開発
- ② 水・大気の実験計測システムの開発
- ③ 水中での放射線計測システムの開発
- ④ 標準資料の作成

Morphology Physicochemical morphology of radioactive substances

プロジェクト・リーダー：塚田祥文（福島大学）

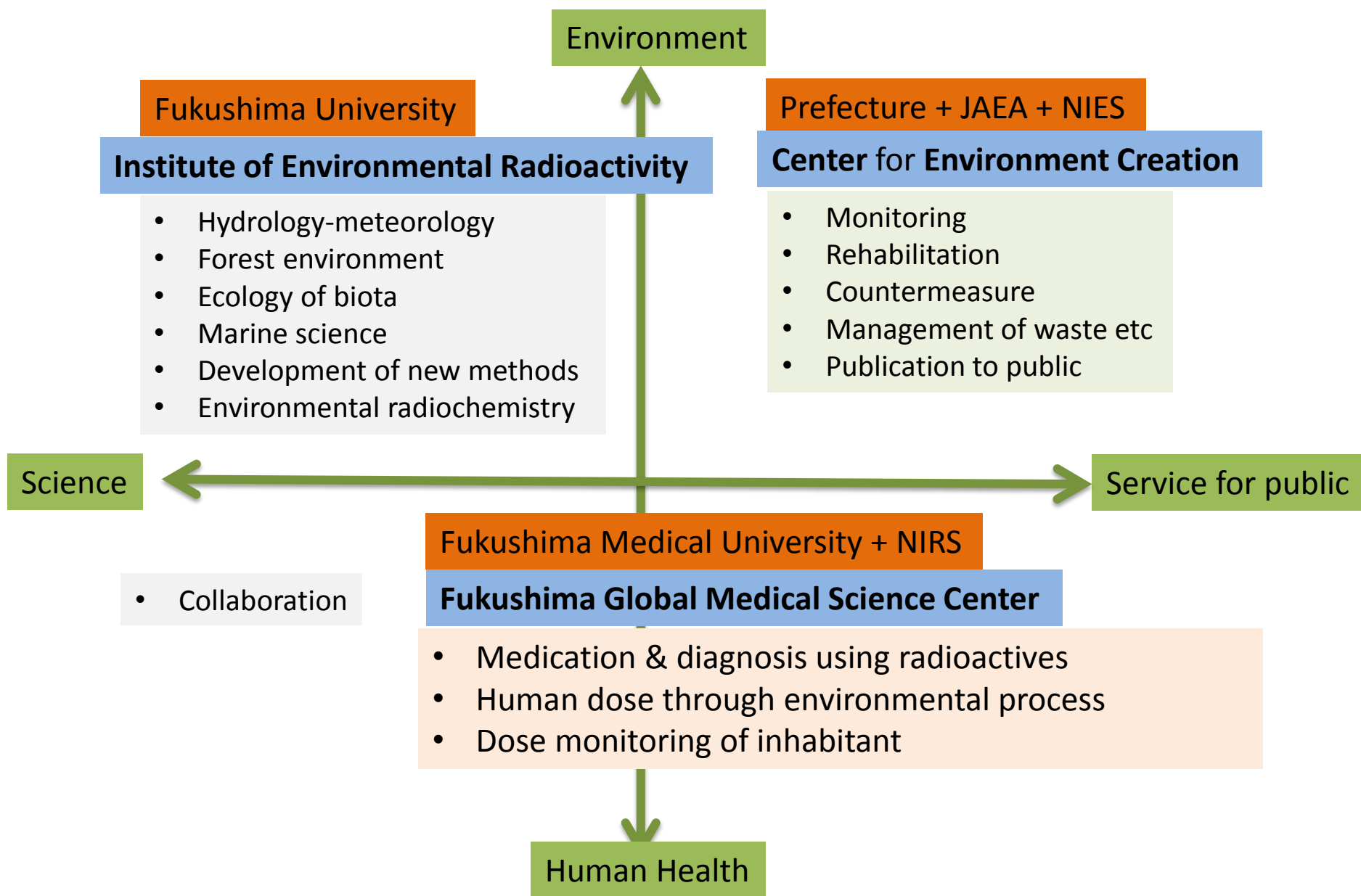
- ① 土壌における放射性セシウムの存在形態から植物やイノシシへの移行過程の解明に関する研究
- ② 河川水や灌漑水中における存在形態別放射性セシウムに関する研究
- ③ 土壌－作物間における放射性核種の移行に関する研究

環境放射能の広い分野を統合し
 実際のフィールドを活用した環境放射能の
 先端的総合研究を行う唯一の研究機関を目指
 す
 国内外研究のハブ機能



環境試料中における放射性核種の物理化学的
 存在形態を明らかにし、挙動の解明に迫る

Three New Institutes in Fukushima





IER の研究員



Director
Takahashi, Takayuki

Robotics
Development of
Sampling / measuring
instruments



Deputy director
Nanba, Kenji

Environmental
Microbiology
Transfer of rCs in
freshwater system



Deputy director
Onda, Yuichi

Hydrology
Transfer in forest and
aquatic system



Professor
Tsukada, Hirofumi

Radioecology
Agricultural env. and
products



Professor
Aoyama, Michio

Marine
physics and chemistry



Project professor
Alexei Konoplev

Radiochemistry and
radiobiology



Project professor
Sergii Kivva

Statistics and Hydrology
Environmental modeling



Project professor
Mark Zheleznyak

Hydrology
Modeling of nuclear transfer in
Water system



Project professor
Vasyl Yoschenko

Radioecology
Forest ecology and products



Project professor
Valentine Golosov

Geomorphology
Nuclear transfer in the
environment



Project associate professor
Takase, Tsugiko

Physical chemistry
Development of
analytical technique



Project assistant professor
Olena Parenuik

Radiobiology
Soil microbiology



Project assistant professor
Okuda, Kei

Zoology
Radioecology of wild mammals



Cooperative researcher
Ishimaru, Takashi

Marine ecology

Cooperative researchers

Oguri, Emiko Botany Hiroshima Univ.

Shoulkamy Ibrahim Mahmoud Ibrahim

Zoology Hiroshima Univ.

Mitsutake, Norisato Nagasaki Univ.

Ogi, Tomoo Nagasaki Univ.

Participating profs from SSS Fukushima Univ.

Watanabe, Akira Meteorology

Yamguchi, Katsuhiko Physics

Takagai, Yoshitaka Analytical chemistry

Yokoo, Yoshi Hydrology· Civil engineering

Kawagoe, Seiki Hydrology of watershed

IER delegates visit Ukraine in Jan. 2015

- Kiev (26th , Monday)

Ukrainian Institute of Agricultural Radiology (UIAR)

Institute of Mathematical Science and System Problems (IMMS)

National University of Life and Environmental Science of Ukraine (NUBIP)

Institute of Safety of Nuclear Power Plants

- Chernobyl (27th , Tuesday)

Chernobyl Nuclear Power Plant

State Agency of Ukraine on Exclusion zone management (EcoCenter)

- Slavutych and Chernihiv (28th , Wednesday)

Chernobyl Center for Nuclear Safety, Radioactive Waste and Radioecology

Chernihiv National University of Technology

- Odessa (28th , Thursday)

Odessa State Environmental University (OSEU)

Ukrainian Scientific Center of Ecology of the Sea (UkrSCES)

Further relationship

- Collaborations
Modeling <-> Observation & Experiment
- Exchange researchers and/or students
Education and training
Comparative study Ukraine/Japan
- Visiting each other
Environmental research & management
Other issues related to NP accident