

# 国際科学技術センター(ISTC)からの 環境修復、原子力事故対応への貢献



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International Science and Technology Center

国際科学技術センター(ISTC)・事務局次長

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# ISTCとは

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- 政府間協定に基づく軍事技術不拡散と科学技術協力の推進のための国際機関
- 1994年、運営開始
- 加盟極：日、米、欧、露、加、ノルウェイ、韓国、及び旧ソビエト連邦の6カ国  
(アルメニア、ベラルーシ、グルジア、カザフスタン、キルギスタン、タジキスタン)



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# ISTCの実績



- プロジェクト数 2,751件
- のべ提供資金総額 約10億ドル
- 参加研究者・機関  
のべ約7.4万人、約1,000研究機関
- ジャパン・ワークショップ等、日本で60回以上のワー  
クショップ



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# ISTC 福島事故関連 プロジェクトレビュー



- ①核汚染地域の除染・回復
- ②セミパラチンスク実験場関連
- ③チェルノビル事故分析
- ④放射能の影響の分析
- ⑤廃棄物処理
- ⑥環境モニタリング
- ⑦シビアアクシデント評価

のべ約130プロジェクト、42百万ドル  
の関連研究開発



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# 特定されたISTC関連分野



## ①核汚染地域の除染・回復

- 土壌の除染
- 放射性廃棄物貯蔵池の沈泥からの超ウラン元素の分離
- 固体表面の除染
- 高レベル廃棄物貯蔵タンクの洗浄
- 放射性廃棄物の熱分解
- 侵食に対する放射能汚染された土壌の固定
- 放射能フリーなセルロースの分離技術





## ②セミパラチンスク実験場

- ・生態モニタリングとモニタリング装置
- ・水の汚染と管理
- ・除染と復旧
- ・放射線生物学と公衆衛生

## ③チェルノビル事故後解析(炉心解析)

## ④放射線影響(数学モデルと解析結果)

- ・河川や地下水を通じた放射能の拡散
- ・食物連鎖等を通じた放射性核種の移動
- ・大気中の放射性核種
- ・意思決定支援システム



## ⑤液体及び固体放射性廃棄物の処理

- ・高レベル放射性廃棄物の処理
- ・低～中レベルの放射性廃棄物の処理

## ⑥モニタリング

- ・セミパラチンスク
- ・チェルノブイル事故後
- ・ウラル地域、シベリア地域
- ・キルギスタン 他

## ⑦シビアアクシデント評価



# 日本側ご関心の 環境関係22プロジェクト



## 1 研究、技術ベースの内容

### 1-1 環境修復に係る技術に関するもの

- 土壌の物理・化学的除染
- 固体表面の除染
- 廃棄物の減容
- バイオレメディエーション
- 汚染土壌の固定

### 1-2 放射性物質の拡散予測等に関するもの

### 1-3 日本海における放射性核種の挙動調査

## 2 ステークホルダー、安心、判断基準に役立つ内容



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# レビューに基づく ISTCの活動実績



●日本側の関心に基づき、モスクワでこれまでに2回の  
専門家会合を開催。

- シビア・アクシデント(2011.12.1-2)
- 除染・環境回復(2011.12.5-6)



ロシア、ウクライナ等の除染・環境修復に関する研究成果や  
技術・経験に学ぶ福島復興のためのシンポジウムとセミナー  
＝7件のISTCプロジェクトのご紹介



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# NEXT STEPS

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- ① 福島事故関連で有用な科学技術の絞込み
- ② ISTCは引き続きお手伝いいたします

***We are ready to work with you !***



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# 1 研究、技術ベースの内容

## 1-1 環境修復に係る技術に関するもの



Project	Title	Institute	Tech. Field
2055	Development and Demonstration of Technology for Decontamination of Solid Surfaces and Soils by Subcritical Carbon Dioxide	Khlopin Radium Institute, et.al.	Decontamination of soils by chem. and phys. method
1567	Use of IPEC for Remediated Soils Contaminated from Nuclear and Industrial Activities	All-Russian Scientific Research Institute of Non-Organic Materials named after A. Bochvar, et.al.	
0016	Development of electrokinetic and chemical methods for rehabilitation of soil and ground water contaminated by radionuclides and heavy metals	Federal State Unitary Enterprise Research and Development Institute of Power Engineering named after N.A.Dollezhal, et.al.	
3189	The Development of Composition and Technology of Amendment Production for Rehabilitation of Soils Contaminated by Radionuclides and Assessment of Their Application Efficiency	Scientific & Production Association "Typhoon"	
B-859	Combined Technology for Radioactively Contaminated Soil Remediation Based on Application of Hydroseparation, Chemical Leaching and Addition of Natural Organic and Mineral Absorbers	Joint Institute of Energy and Nuclear Research – Sosny	
p2042	Evaluate Decontamination Techniques For Use at the Idaho National Technology Engineering Center	All-Russian Scientific Research Institute of Non-Organic Materials named after A. Bochvar	Decontamination of solid surfaces
0869	Liquidation of the Chernobyl Disaster Aftermath: Development of a Technology for Pyrolytic Processing, Disposal and Compacting of Combustible Radioactive Technogenic Waste	Institute of Problems of Chemical Physics	Reducing active waste amounts
B-852	Development of Conversion Technology for Isolation of Radionuclide-free Cellulose and Nitrolignin from the Straw of Agrocultures as a Method for Rehabilitation and Deactivation of Territories	Belarussian State University / Institute of Physical Chemical Problems	Bio remediation
K-152	Fixation of the Radioactive Contamination of Soil Surface at the Azgir Range	Kazakh National University, et.al.	Fixation of radio isotope polluted soils against erosion

# 1 研究、技術ベースの内容

## 1-2 放射性物質の拡散予測等に関するもの



Project	Title	Institute	Tech. Field
3696	Modeling of Radionuclide Transport Realized into the Rivers, Lakes and Bays from the Non-Uniformed Contaminated Territories in Order to Perform Long-Term Radio Ecological Prediction Using Measuring Data Analysis	VNIIEF, et.al.	Mathematical models and results of radiological impacts
0851	Development of Prediction Models for Radioactive Contamination Escape from the Karachai Lake Based upon Modern Data on the Site Geological Structure	IGEM (Geology & Mineralogy), et al.	
0589	Developing Confinement Techniques for Radioactive Matters within Topsoil to Prevent their Spread with Water and Wind from the Sites on Nuclear Fuel Cycle Sites	All-Russian Scientific Research Institute of Non-Organic Materials named after A. Bochvar, et. Al.	Decontamination of soils by chem. and phys. method



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# 1 研究、技術ベースの内容

## 1-3 その他

(日本海における放射性核種の挙動調査)



Project	Title	Institute	Tech. Field
p1389	Investigation of Migration Behaviour of Radionuclides and Related Oceanographic Observation in Sea of Japan	Far Eastern Regional Hydrometeorological Research Institute, et.al	Mathematical models and results of radiological impacts
p1783	Investigation of Migration Behavior of Radionuclides and Related Oceanographic Observation in the Sea of Japan		
p2387	Investigation of Migration Behavior of Radionuclides and Related Oceanographic Observations on the Sea of Japan		



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## 2 ステークホルダー、安心、判断基準 に役立つ内容



Project	Title	Institute	Tech. Field
p4007	Fate and Transport of Cesium, Strontium and Cobalt Particles on Urban Surfaces	Scientific & Production Association "Typhoon"	Mathematical models and results of radiological impacts
0150	Contamination of Agricultural Products, Dose Burden for Population and Efficiency of Countermeasurement on Contaminated Lands: Probabilistic Methods of Estimation, mathematics and Software.	Institute of Agriculture Radiology and Agroecology, et.al.	
1224	Development of GIS-DSS Systems for Research, Education and Training in the Context of the Rehabilitation of Contaminated Territories with Consideration of Radioecological, Ecological, and Socio- Economic Factors. (GIS - Geographical Information system; DSS - Decision support System)	Kurchatov Research Center, et.al. [Obninsk Institute of Nuclear Power Engineering]	
2558	Radioecological Monitoring of the Tobol and Irtysh Rivers. Study of Biogenic Transfer of Radionuclides and Radiation Risk Assessment for the Population and Environment	Russian Academy of Sciences / Severtsov Institute of Ecology and Evolution, et.al.	
3547	Analysis of Radionuclides Transport and Assessment of Radiation Risk for the Population and Environment in the Basin of the Irtysh-Ob' River System	Russian Academy of Sciences / Severtsov Institute of Ecology and Evolution, et.al.	
K-052	The Development of ways to Increase the Effectiveness of Agricultural Production of Spoiled Territories of Kazakhstan.	National Biotechnology Center of Kazakstan / Scientific Research Agricultural Institute	Decontamination of soils by chem. and phys. method
K-237	Development of Methods for Remediation of Soils with Increased Contents of Heavy Metals, Radionuclides and Improvement of Soils for Ecologically Clean Agricultural Production Systems Taking into Account the Population Health Indicators	Kazakh Research Institute of Fruit Growing and Viticulture, et.al.	Bio remediation