

Web Applications Using Sensor Network Data

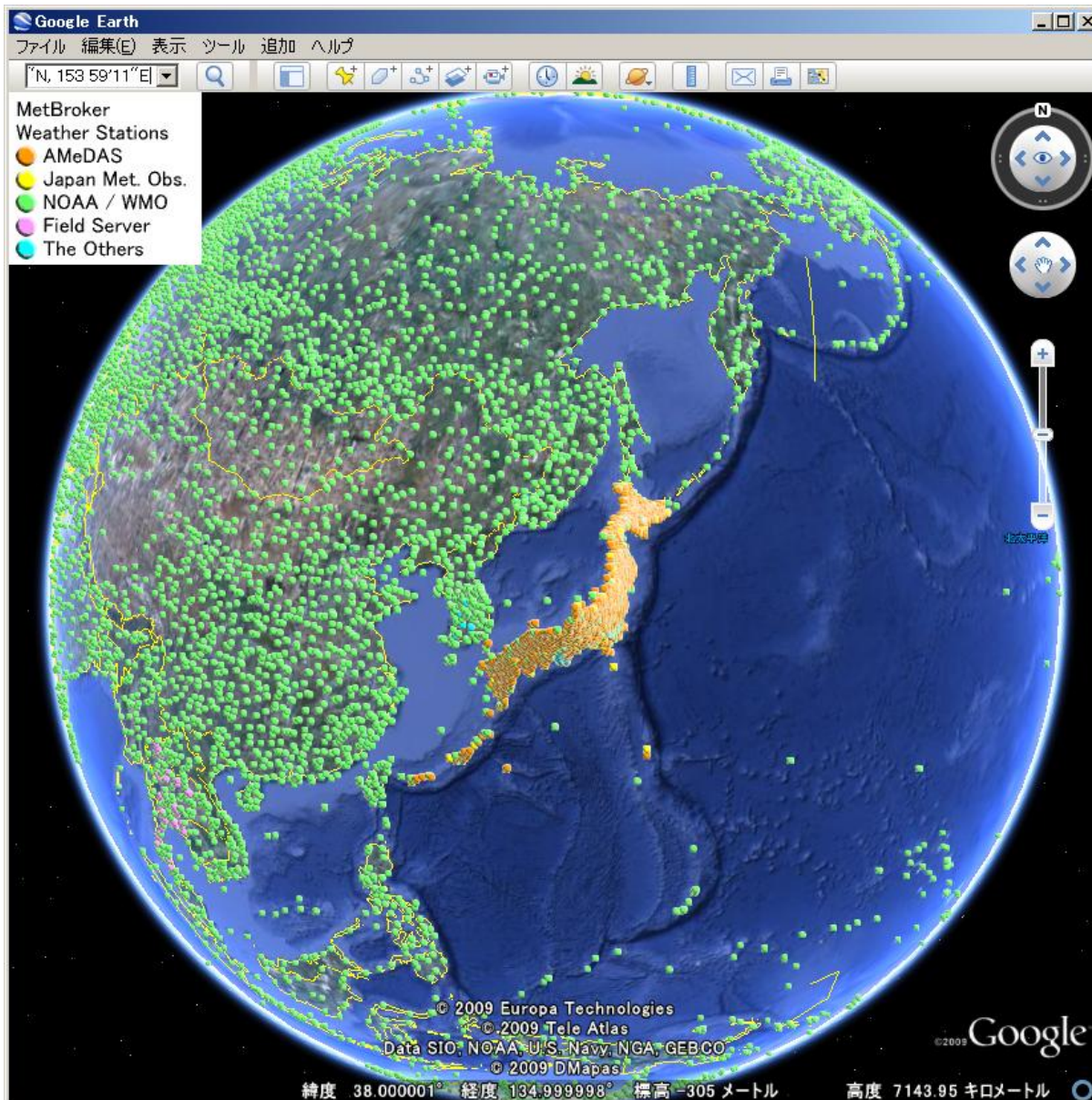
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Web Applications

- Application acquiring meteorological data through MetBroker
 - Crop growth prediction model
- Application using data and images observed by FieldServer
 - Data viewer, Image viewer, Change detection service

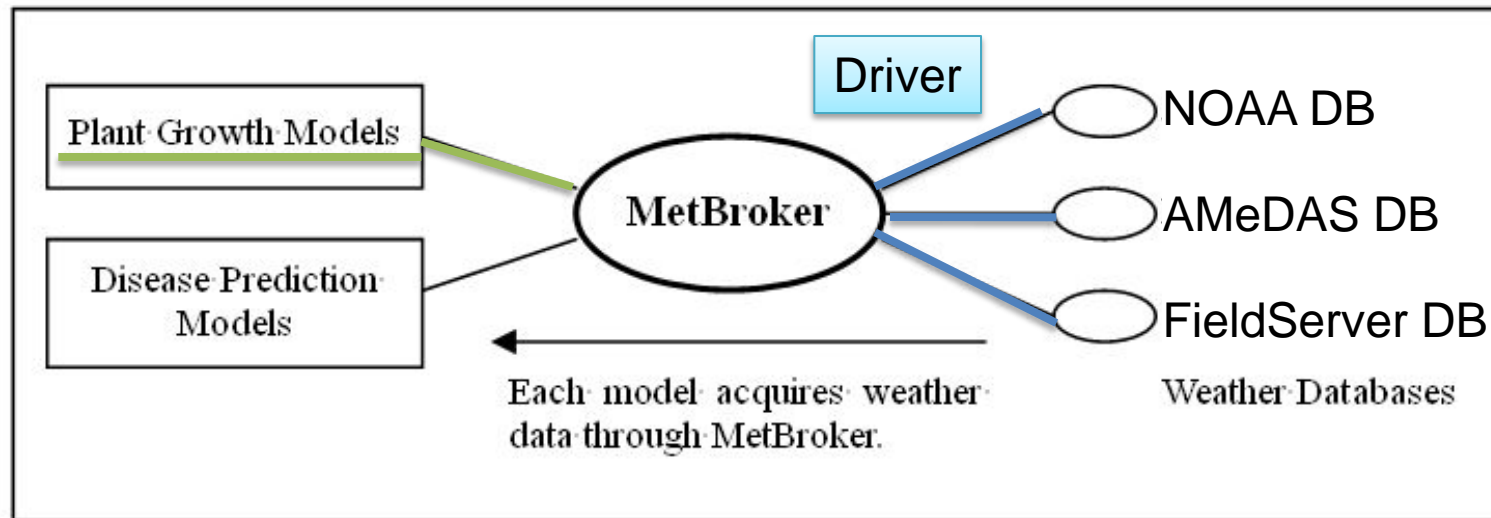


MetBroker

- Middleware to provide consistent access to heterogeneous weather databases
- 22,000 weather stations of 25 DBs
- Legacy weather databases and sensor network nodes are seamlessly integrated

MetBroker

- Seamless integration of FieldServer with legacy databases through MetBroker
 - DB: MetBroker driver program
 - Model: MetBroker access program



SIMRIW (Simulation Model for Rice-Weather relations)

SIMRIW (Simulation Model for Rice-Weather relations) - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(I) ヘルプ(H)

StationSelection: Map2 | PlaceName Help

SIMRIW (Simulation Model for Rice-Weather relations)

Cultivar
Koshihikari

Transplanting Date
2007 / APR / 30

Parameter
Initial value of DVI: 0.2
Initial value of LAI: 0.08
Initial value of Dry Weight: 18.0 g/m²
CO₂ Concentration: 350.0 ppm

Interpolation
☐ Interpolate missing and future data
☒ Normal value ☐ GPV
Add value for Air temp. 0 C

Output
☒ All ☐ Charts ☐ Table ☐ CSV ☐ XML
☐ XML+XSL(ZIP) ☐ Google Earth

Map **Satellite**

AmeDAS(Japan) / Ibaraki Tsuchiura
Latitude: 36.09, Longitude: 140.20
Period: 1976/3/1 -
Add Execution List

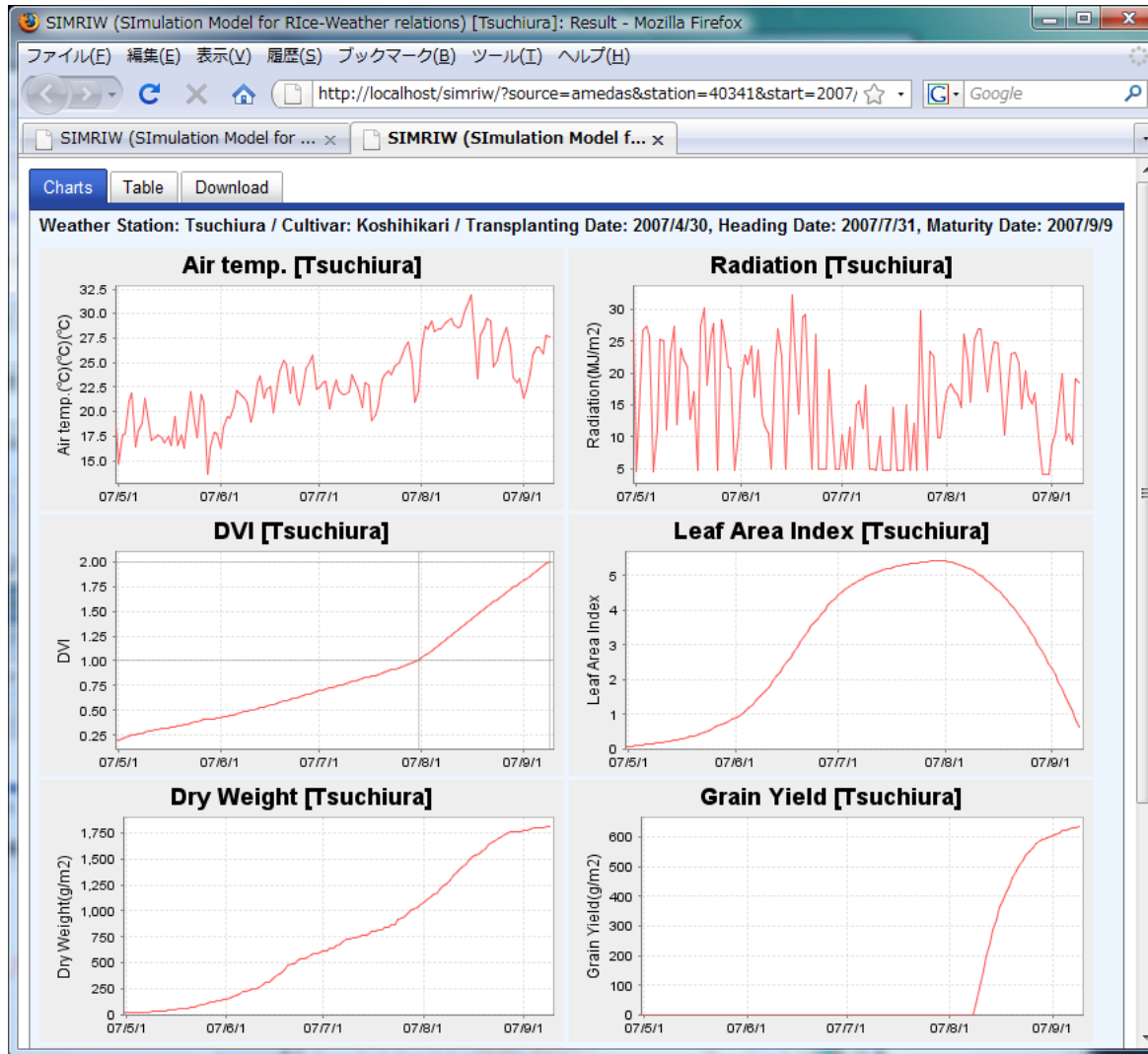
Weather Data is acquired through MetBroker

Model Execute ☐ Execute all stations in the map.

☐ Not acquire weather station information. (Use this option, when moving to a long distance place)

<http://pc105.narc.affrc.go.jp/simriw/>

Results of SIMRIW



[ファイル\(E\)](#)
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[SIMRIW \(SIMULat... x\)](#)

[Charts](#)
[Table](#)
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Weather Station:

Cultivar:

Transplanting Date:

Heading Date:

Maturity Date:

Tsuchiura

Koshihikari

2007/4/30

2007/7/31

2007/9/9

Date	Air temp.	Radiation	DVI	LAI	Dry Weight	Grain Yield	Potential Yield
	ave.	Global	max.	max.	max.	max.	max.
	C	MJ/m ²			g/m ²	g/m ²	g/m ²
2007/4/30	18.5	27.14	0.20	0.1	18.0	0.0	0.0
2007/5/1	14.7	4.51	0.20	0.1	18.3	0.0	0.0
2007/5/2	17.6	17.66	0.21	0.1	19.3	0.0	0.0
2007/5/3	17.7	26.66	0.22	0.1	21.1	0.0	0.0
2007/5/4	21.1	27.35	0.24	0.1	23.1	0.0	0.0
2007/5/5	21.9	25.61	0.25	0.1	25.2	0.0	0.0
2007/5/6	16.4	4.59	0.26	0.1	25.6	0.0	0.0
2007/5/7	18.0	11.05	0.26	0.1	26.6	0.0	0.0
2007/5/8	18.8	25.23	0.27	0.2	29.2	0.0	0.0
2007/5/9	21.3	24.99	0.28	0.2	32.0	0.0	0.0
2007/5/10	18.8	11.15	0.29	0.2	33.4	0.0	0.0
2007/5/11	17.1	22.97	0.30	0.2	36.4	0.0	0.0
2007/5/12	17.3	27.39	0.30	0.2	40.3	0.0	0.0
2007/5/13	17.6	12.02	0.31	0.2	42.1	0.0	0.0
2007/5/14	17.4	23.94	0.31	0.3	46.0	0.0	0.0
2007/5/15	16.8	22.27	0.32	0.3	49.9	0.0	0.0
2007/5/16	17.5	21.07	0.33	0.3	53.8	0.0	0.0
2007/5/17	16.5	12.77	0.33	0.3	56.3	0.0	0.0
2007/5/18	19.5	17.07	0.34	0.3	59.9	0.0	0.0
2007/5/19	16.6	4.75	0.34	0.4	61.0	0.0	0.0
2007/5/20	17.6	27.31	0.35	0.4	67.6	0.0	0.0
2007/5/21	16.3	30.23	0.36	0.4	75.3	0.0	0.0
2007/5/22	19.7	18.02	0.36	0.4	80.2	0.0	0.0
2007/5/23	22.0	25.89	0.37	0.5	88.1	0.0	0.0
2007/5/24	19.0	27.70	0.38	0.5	97.1	0.0	0.0
2007/5/25	17.4	4.81	0.39	0.6	98.7	0.0	0.0
2007/5/26	21.8	28.45	0.40	0.6	109.4	0.0	0.0
2007/5/27	21.0	26.09	0.41	0.7	119.9	0.0	0.0
2007/5/28	13.6	20.97	0.41	0.7	128.6	0.0	0.0

We are planning to estimate rice yield by SIMRIW in India and Africa using sensor network data.

Web Application for FieldServer

FieldServer Servlet - Mozilla Firefox

ファイル(E) 編集(E) 表示(V) 履歴(S) ブックマーク(B) ツール(I) ヘルプ(H)

http://localhost/fieldserver/

All | Japan English | 日本語

Field Server

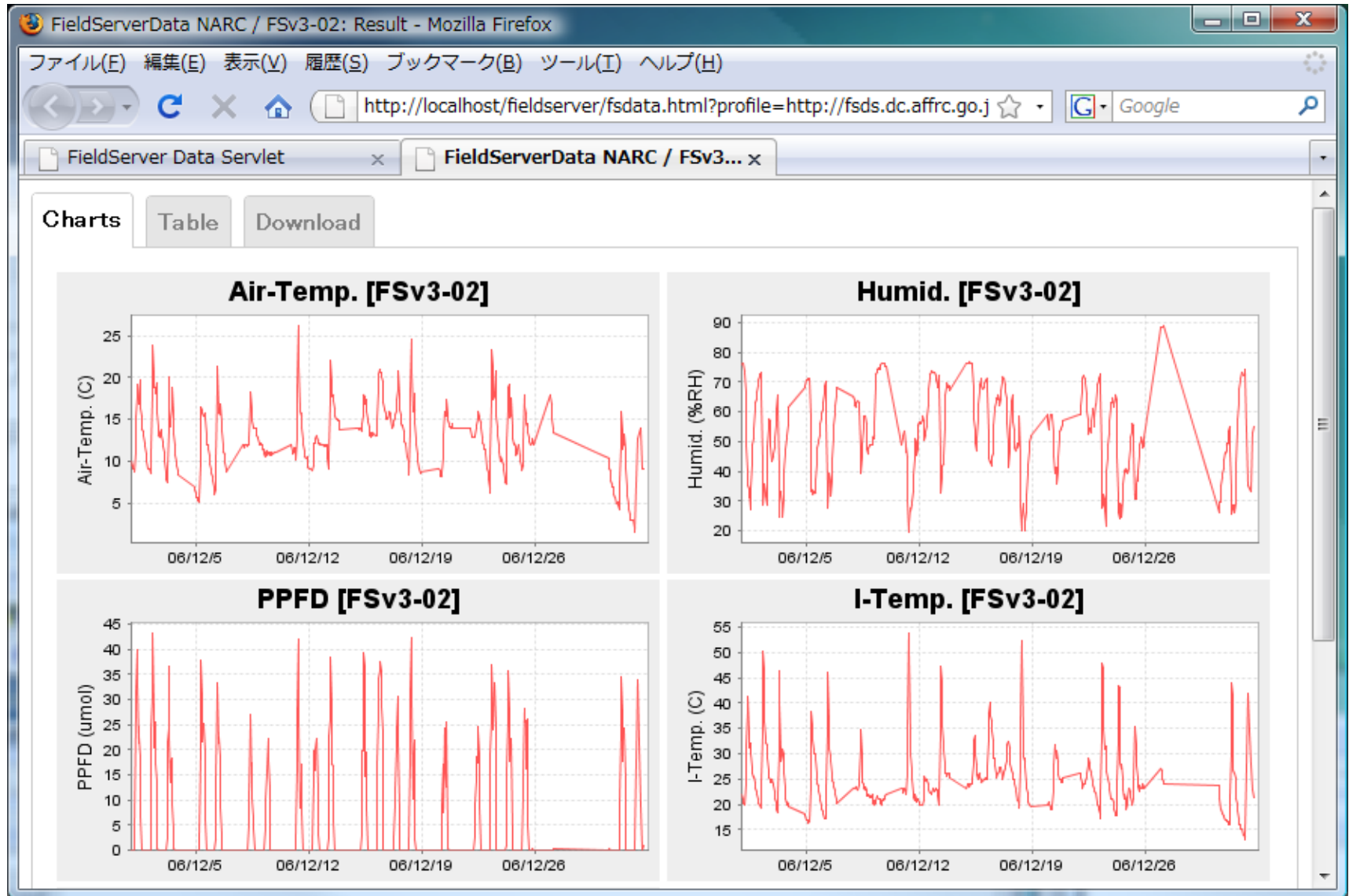
Map Satellite

Map data ©2008 Europa Technologies - [Terms of Use](#)

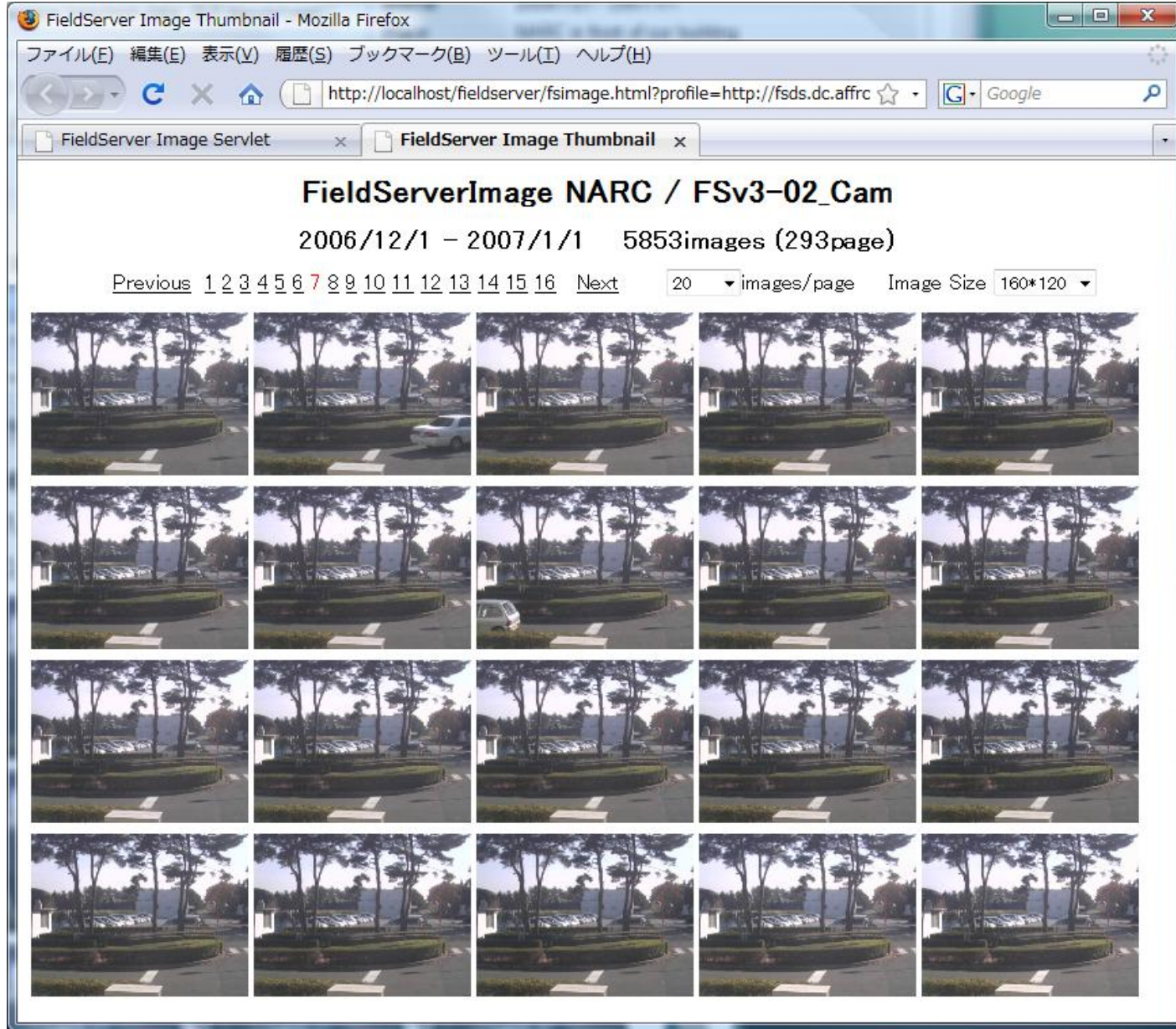
Location	Data	Image
Azuma	azuma01 (a house garden in Tsukuba)	azuma01_cam (a house garden in Tsukuba)
Baoding	fs01 (JIRCAS Baoding) fs02 (JIRCAS Baoding) fs03 (JIRCAS Baoding) fs04 (JIRCAS Baoding)	fs01_cam (JIRCAS Baoding) fs02_cam (JIRCAS Baoding) fs03_cam (JIRCAS Baoding) fs04_cam (JIRCAS Baoding)
BogorSRI	Bogor01 (Indonesia,Bogor,Univ. of Tokyo)	Bogor01_cam (Indonesia,Bogor,Univ. of Tokyo)

<http://pc105.narc.affrc.go.jp/fieldserver/>

FieldServer Data Viewer and Download Service



FieldServer Image Viewer





Change Detection Service



Appearance of cars in the fruit farm and the vegetable field are detected successfully.



Algorithm used by this service is robust to unimportant change.