

2008 ITP Project Report

Research at Environmental Systems Research Institute, Inc., United States

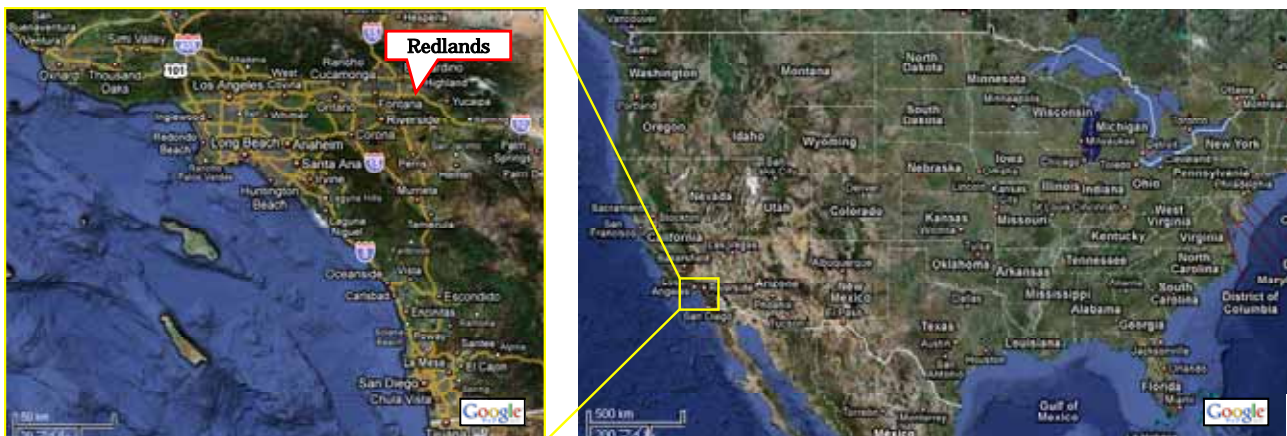
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Based on International Training Program (ITP) supported by Japan Society for the Promotion of Science (JSPS), I had attended International Internship Training Program within 3 months (3rd November 2008 ~ 1st February 2009) in Environmental Systems Research Institute (ESRI), Redlands, California. My life in Redlands, the staff at ESRI, and my research activity at the internship are reported in this paper.

1. Life in Redlands

- 1) ESRI is located in Redlands, California, United States. It is about 90 minutes away from Los Angeles International Airport by car.
- 2) We can go to supermarket, shopping mall, and restaurant by bicycle in Redlands.
- 3) Redlands is small city. There is no need to worry about security so much.
- 4) Some Japanese are working at ESRI.
- 5) It is warmer and less rain in Redlands than in Fukuoka
- 6) I have had a home-stay at Indian family who works at ESRI. In many cases, internship students have a home-stay or share a room.



Location of Redlands

2. Staff at ESRI

1) Dr. Dean Djokic

He is the leader of the water resources group. He has knowledge about hydrological models and analysis software. I had studied under the direction of him.

2) Mr. Sreeresh Sreedhar

He is a staff of the water resources group. He gave me technical advice.

3) Ms. Annie L'Heureux

She is the staff in charge of International Internship Training Program. She introduced receiving group and host family.



Water Resources Group

3. Research Activity at ESRI

I had done my research (80 %) and attended training courses (20 %) at ESRI.

1) Training courses

There are many kind of training courses about GIS at ESRI.

I had attended following 6 courses.

- Institute to the Multiuser Geodatabase
- ArcGIS Desktop2: Tools and Functionality
- ArcGIS Desktop3: GIS Workflow Analysis
- Writing Advanced Geoprocessing Scripts Using Python
- Building Geodatabases
- ArcHydro: GIS for Water Resources

In these training courses, I got a lot of latest knowledge about GIS. Using the knowledge, I had done research activity at ESRI. Now I am making use of this experience for writing master's thesis.



Atmosphere of Training Courses

2) Research Activity

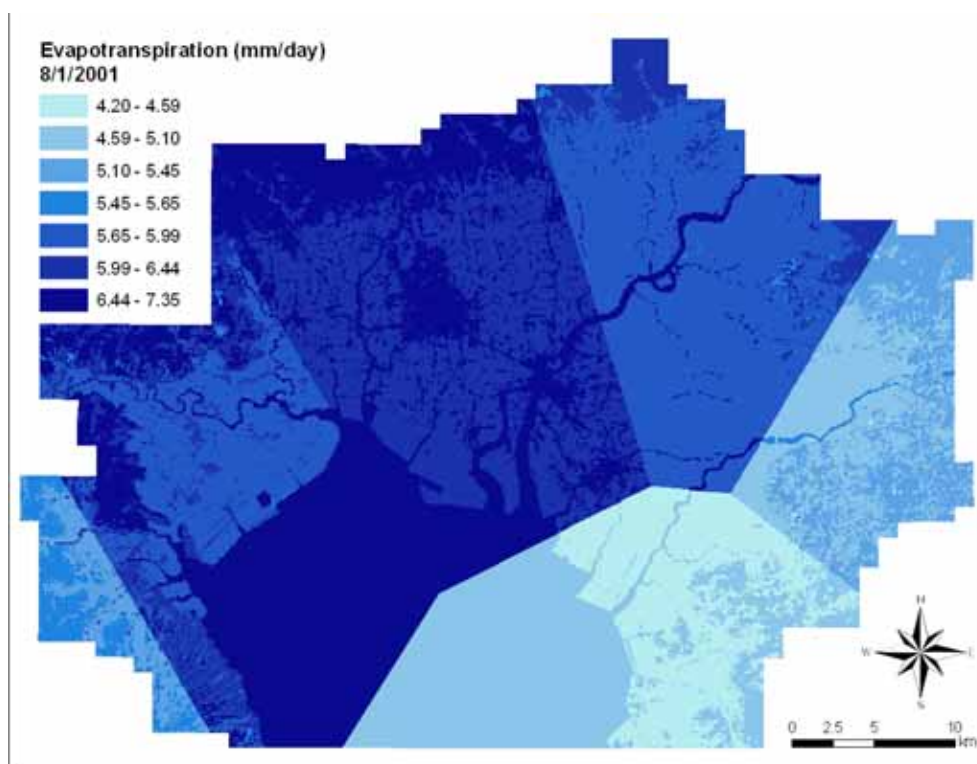
At first, I had tried to learn about using the hydrological tools of ArcGIS (GIS software released by ESRI) and writing geoprocessing scripts using Python. I had studied with training course materials of hydrological analysis and some reference books. Mr. Sreedhar had taught me a lot about these topics.

Then, I had made a tool of calculating distributions of daily evapotranspiration by using Python script. Using this tool, daily distributions of evapotranspiration are calculated from land use map, daily meteorological data, and location data of meteorological observation stations based on Penman method. I had calculated the distribution between 1979 and 2001 in Chikugo-Saga Plain, Japan.

Finally, I had tried to calculate the distributions of groundwater percolation in Chikugo-Saga Plain by using Green-Ampt tool of ArcGIS. I had made Thiessen polygon of meteorological observation stations, soil texture map, precipitation data table, surface runoff coefficient table, and coefficient table based on each soil. However, I could not get a useful result because of Green-ampt method is not appropriate for my research.

I had only a short, three-month stay, but thanks to Dr. Dean Djokic, Mr. Sreeresh Sreedhar, and a lot of people (including other water resources group staff and Japanese staff of ESRI), I had a valuable experience and got some research achievement.

4. Research Achievement



Distribution of Evapotranspiration in Chikugo-Saga Plain (August/1/2001)

