Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

HTT005-P07 Room:Convention Hall Time:May 25 10:30-13:00

Establishment of interoperability Web-GIS in water environments by Mobile-phone-based Database for Water Quality

Rui Fukumoto[1*], Kazuhiko Nakamura[2], Yu Nakayama[2], Syuntaro Okauchi[3], Kazana Kikuchi[4], Takuya Shirahige[4], Taichi Furuhashi[5], Kouichi Sayama[6], Futaba Kazama[7]

[1]WingBase Inc., [2]OpenConcierge, [3]Kyorits Chemical Check Lab., Corp., [4]Hitechs Inc., [5]CSIS The University of Tokyo, [6]Water and Greenery Research Association, [7]University of Yamanashi

1. Background and study objective

Long Term Ecological Research Network (LTER) [1)] is widely watched as a view of environmental monitoring in global scale. In particular, LTER is able to capture a slow change in environmental issues as a precondition to make continued monitoring in Long term. On the other hand, they need to be huge costs so that we try to observe, analysis and transmission of information in many observation site. The key point of continued monitoring in Long term is how to assume including cost between citizens, ministry, industrials and academy. It is desirable that citizens investigates familiar water environments, organize results obtained, sort out the problems involved and makes it to practice activity. [2)]One of the trials is Nationwide simultaneous survey of familiar water environments. [3)]Citizen 's group has problems which are cumbersome management of the data, their activity can be closed and ill-attended in young person.One of the solution against these problems is Web-GIS(WG) facilitating citizen 's activity. There are varied databases for water environments in internet. Bur derelict sites are not negligible except in the case of sites managed by ministry. Another problem are difficult operation and less well-known. We address the challenge to develop by Water-Voice (WV) [4)] which is the application can be registration and reference investigation results on investigate site.It 'll cost huge to develop functions as WV each WG for water environments.The purpose of research is validating the availability by development of interoperability of holding contents between WV to WG in existence within OGC interoperability technology. [5)]

2. Methods

We adopted Open cafe system [6)] which is FOSS4G package and can use XML in data passing in internet.Target WG are WV covers Tama-river basin and Yamanashi-water-net(YAN) [7)] covers all area in Yamanashi prefecture.We adopted iPhone-OS and web browser which are Internet Explorer, Fire Fox and Google chrome for client applications.

3. Results and discussion

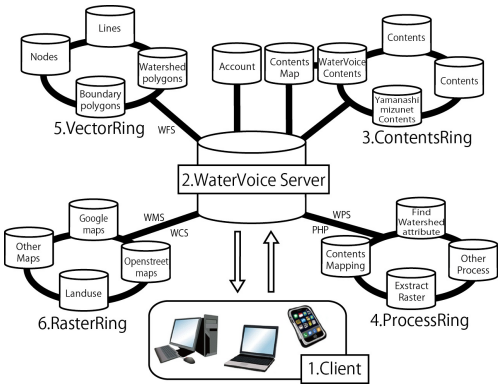
The system architecture can be developing interoperability in different WG in the figure.All user have to do is access WV server by client application with location information and to be automatically selected registration destination and reference destination, we call Contents and to be confirmed current basin by polygon data of basin.This system can be interoperate between WV to YAN can define the attribute for the consistency different WG 's items of data by preparation Contents map table in WV server and equip the PHP function which are can be permitted registration to database and reference database from outside server request in YAN server. Using Web Process Service, it can be used for various analyses by make data which are Web Coverage Service distribution in Raster Ring, aggregate input data which are based on interpretation of Contents Map in Contents Ring and define region by polygon data which are Web Feature Service distribution in Vector Ring.

Our conclusions are following.

1. It can be shared new function to be equipped in different WG and cut cost down.
2. It can be used for various analyses from shared databases.
3. It can be registration and reference data under field survey not required expert knowledge to user.

References

1)http://www.lternet.edu/research/goals.html
2)N.Ogura(2003), Invitation to Citizen 's Action in Environmental Science.
3)T.Tanno et al.(2006), First nationwide simultaneous survey of familiar water environments.
4)R.Fukumoto et al.(2010), Research on usability of water environmental field survey assisting system based on FOSS4G.
5)http://www.opengeospatial.org/standards
6)Nakamura et al.(2010), Challenges and Possibilities of Open Cafe System.
7)http://cosmos.js.yamanashi.ac.jp/mizuNet/



Keywords: mobile-phone, water quality database, web-GIS, interoperability, FOSS4G, water environment