INSTITUTE OF OCEANOGRAPHY AND FISHERIES SPLIT, CROATIA, since 1930 – 75 years

INSTITUTE OF OCEANOGRAPHY AND FISHERIES

Setaliste Ivana Mestrovica 63
21000 Split;

MEDAS system for Internet presentation, management and validation of Oceanographic metadata and data

Damir Ivankovic, Vlado Dadic

Internet Users' Conference - **CUC 2005**
Dubrovnik, November 21.-23., 2005.

Database & supplayers / users

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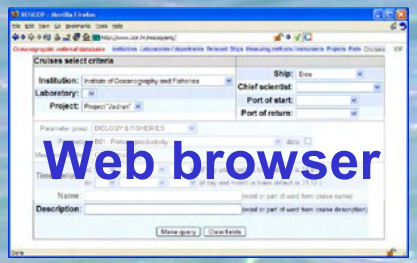

Upload &

Download

Application server

MEDAS

Database with GIS tools and web interface

Download

- Governement
- Counties
- Turists
- Decision makers
- ....

Croatian National Monitoring Programme

Systematic Research of the Adriatic Sea as a Base for Sustainable Development of the Republic of Croatia

Croatian Institutions

Marine Environmental Database of the Adriatic Sea (MEDAS)

Database capability

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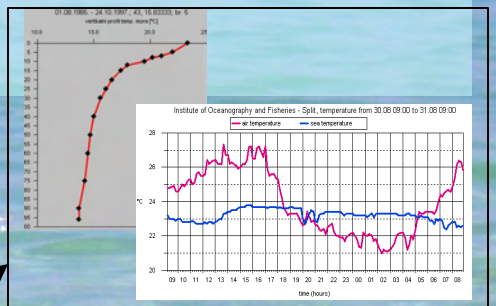
Online stations (real time)

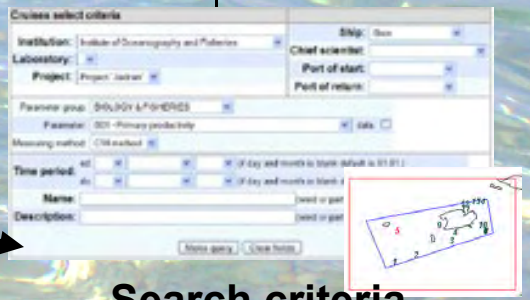
Maping and data visualisation tools



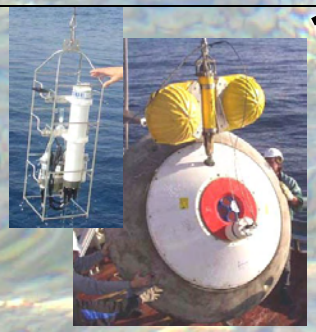
Data visualisation

Cruise summary reports (near real time – GPRS)

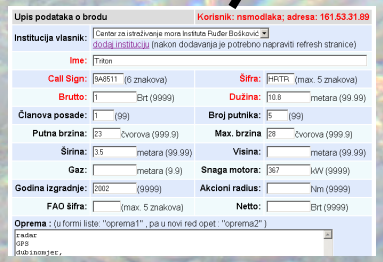
MEDAS database



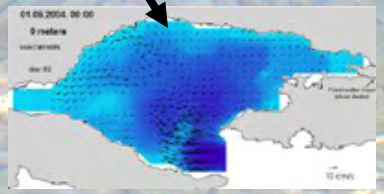
Search criteria, grouping data, statistics



Data in digital form



Manually inserted data

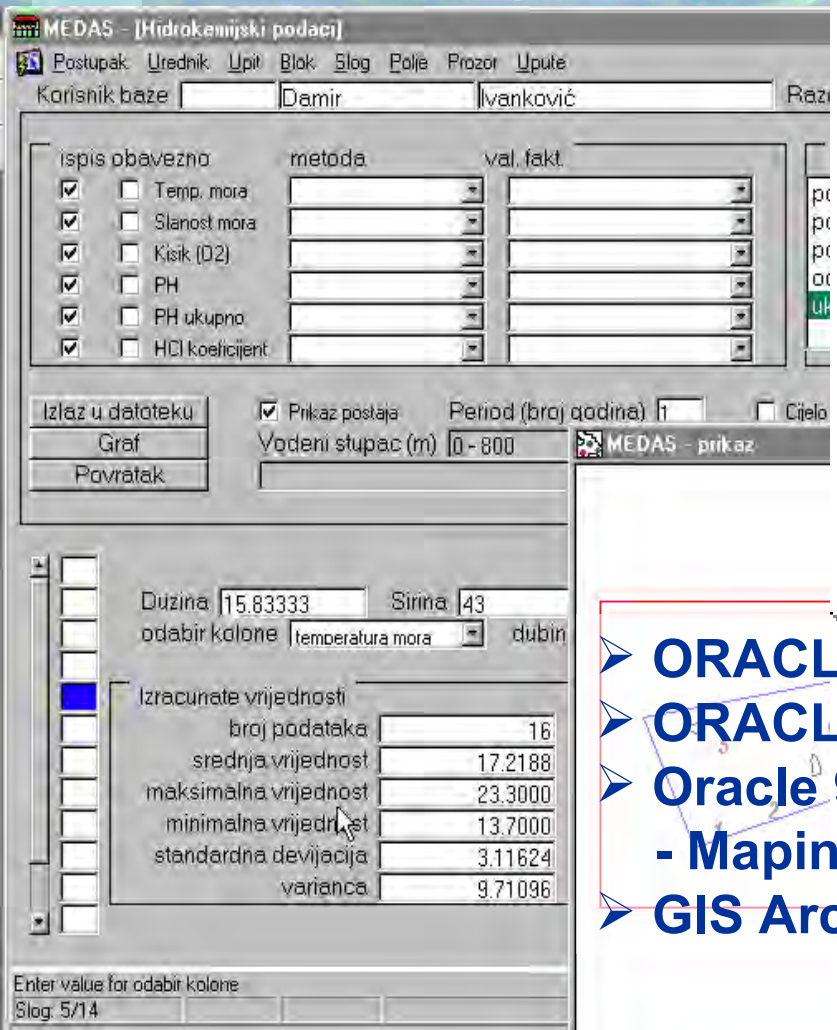


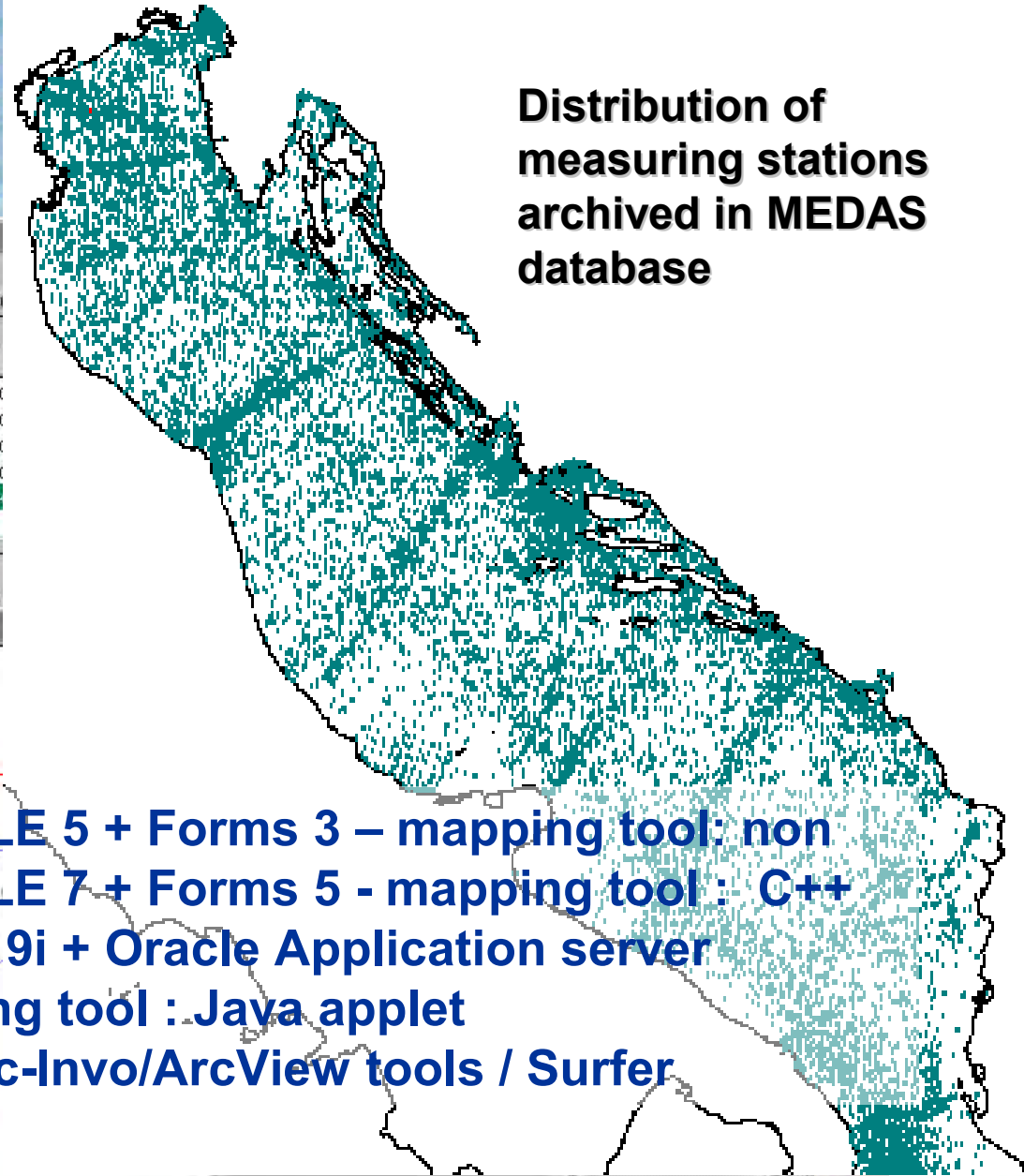
Data for running models

Data export:
- MEDAR / MEDATLAS
- Excel
- Ocean Data View
- Surfer
- Arc GIS 8.1

MEDAS database - history

SPLIT,





Distribution of measuring stations archived in MEDAS database

- ORACLE 5 + Forms 3 – mapping tool: non
- ORACLE 7 + Forms 5 - mapping tool : C++
- Oracle 9i + Oracle Application server
  - Maping tool : Java applet
- GIS Arc-Invo/ArcView tools / Surfer

Why this technologies?

ORACLE 9i:
- Stability, security
- Lack of stuff (few men's show)

ORACLE Application Server:
- No need for client side software (only browser)
- Accessibility (different institutions, ship – GPRS)
- Easy web publishing (default)

Java applet – mapping tool and data visualisation:
- Portability (cross platform)
- Use of Client side resources (no need for powerful server)

Disadvantages:
- Software license cost
- Instability and bugs of some Java versions
- Sometimes need for manually JVM install

MEDAS database web interface

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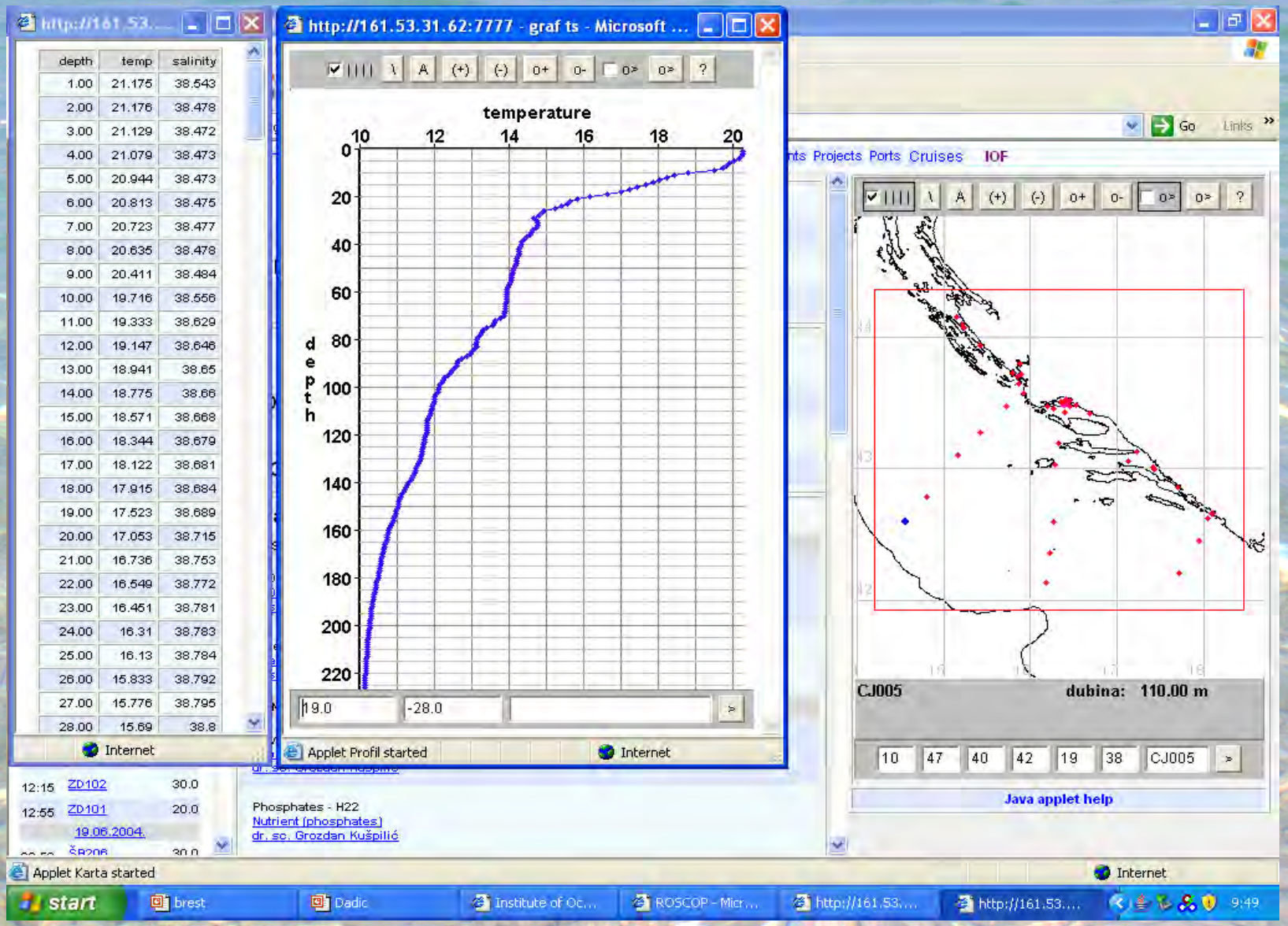
Metadata and measured data



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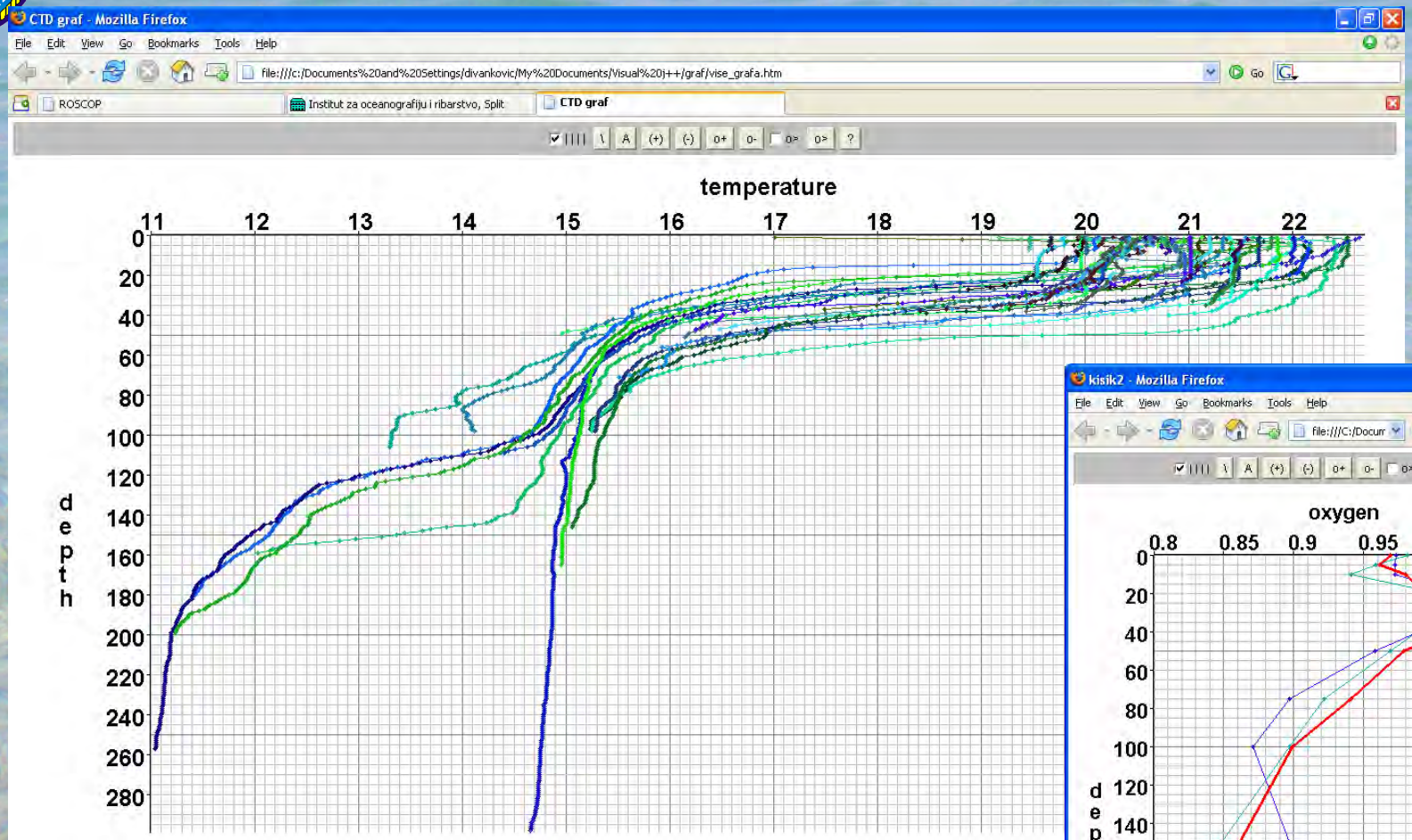
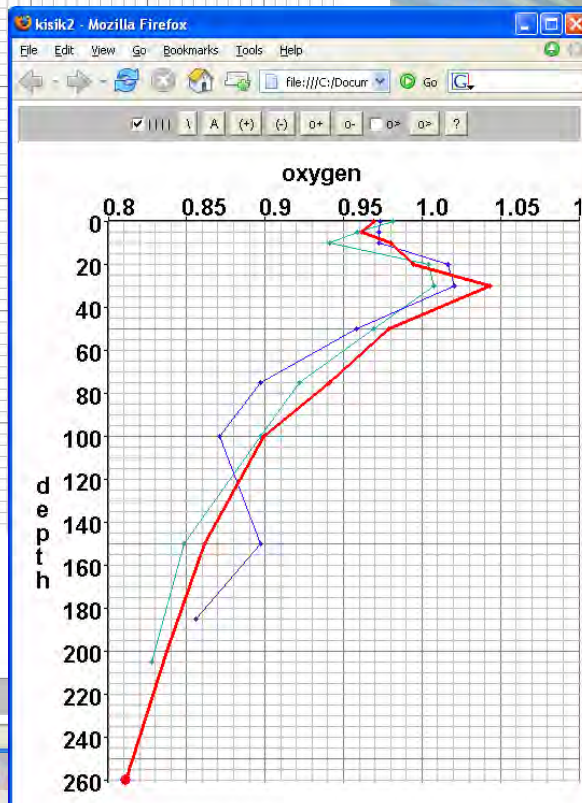
Quality control and data visualisation





Data visualisation and quality control linked with CSR metadata – to anchorage scientist to fill CSR reports

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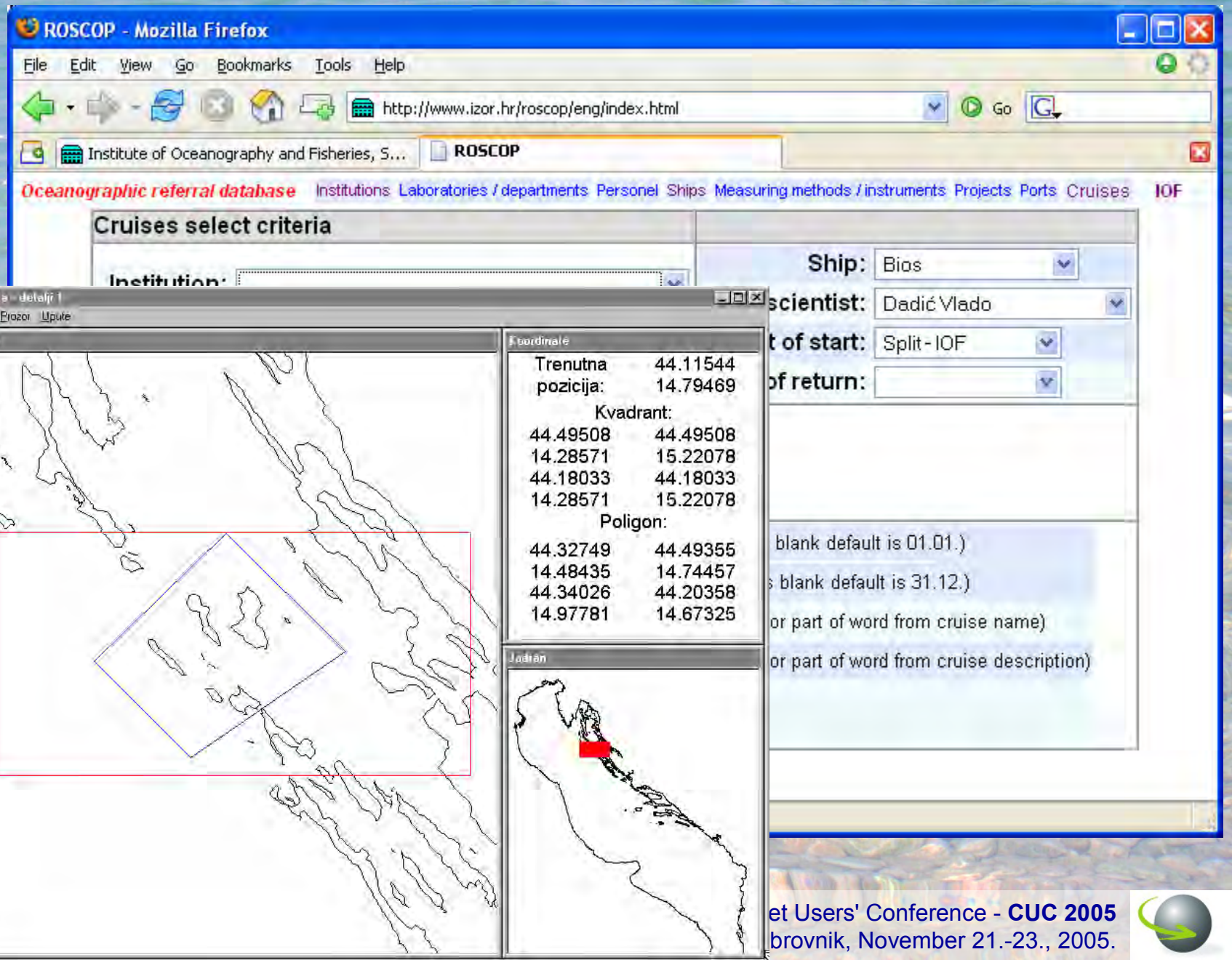
Importance of good search criteria



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Input forms

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BRODOVI

IME	T* [Brt]	Duž* [m]
Navicula	1	10.80
Triton	1	10.80
Hidra	77	22.10
Vila Velebita	100	25.40
Bios	173	27.74
Naše More	240	31.35
Palagruža	300	

Upiši podatke o brodu (za autorizaciju)

* T - brutto tonaža u Brt

Ime: *Triton*

Call Sign:	9A8511
Šifra:	HRTR
Brutto:	1 Brt
Dužina:	10.80 m
Posada:	1

Upis podataka o brodu — **Korisnik: nsmodlaka; adresa: 161.53.31.89**

Institucija vlasnik: Centar za istraživanje mora Instituta Ruđer Bošković
dodaj instituciju (nakon dodavanja je potrebno napraviti refresh stranice)

Ime: Triton

Call Sign:	9A8511 (6 znakova)	**Šifra:**	HRTR (max. 5 znakova)
Brutto:	1 Brt (9999)	**Dužina:**	10.8 metara (99.99)
…a posade:	1 (99)	**Broj putnika:**	5 (99)
…na brzina:	23 čvorova (999.9)	**Max. brzina**	28 čvorova (999.9)
Širina:	3.5 metara (99.99)	**Visina:**	metara (99.99)
Gaz:	metara (9.9)	**Snaga motora:**	367 kW (9999)
…izgradnje:	2002 (9999)	**Akcioni radius:**	Nm (9999)
FAO šifra:	(max. 5 znakova)	**Netto:**	Brt (9999)

…prema : (u formi liste: "oprema1" , pa u novi red opet : "oprema2")

```
radar
GPS
dubinomjer,
```

- **Data input trough web forms (Croatian language only)**
- **Authorisation requested**
- **Basic input validation**
- **Secure protocol (https)**

Cruise report example

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ROSCOP - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.izor.hr/roscop/eng/

ROSCOP | Institut za oceanografiju i ribarstvo, Split

Oceanographic referral database Institutions Laboratories / departments Personel Ships Measuring methods / instruments Projects Ports Cruises IOF

Back

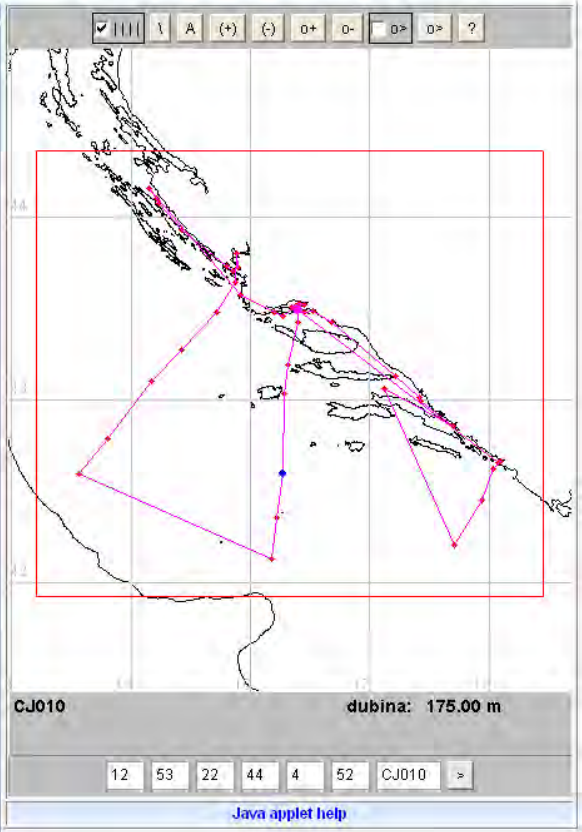
Bios 15.06.04.-25.06.04.

No.	name	dep.
	15.06.2004.	
10:40	CJ007	50.0
12:50	CJ008	75.0
	16.06.2004.	
06:20	CJ009	102.0
15:25	CJ010	175.0
17:55	CJ011	102.0
20:05	CJ012	110.0
	17.06.2004.	
05:50	CJ005	110.0
08:20	CJ004	205.0
12:20	CJ003	260.0
15:40	CJ002	185.0
18:25	CJ001	168.0
20:45	ŠB205	57.0
	18.06.2004.	
06:15	ŠB101	12.0
07:05	ŠB103	35.0
07:30	ŠB203	10.0
07:50	ŠB201	10.0
10:30	ZD105	8.0
11:50	ZD103	26.0
12:15	ZD102	30.0
12:55	ZD101	20.0
	19.06.2004.	
06:50	ŠB206	30.0
08:55	ST201B	47.0
09:35	ST201	50.0
	20.06.2004.	
07:40	ST101	35.0
08:45	ST103	15.0
09:25	ST102	28.0
09:55	ST104	20.0
14:15	ST203B	40.0
15:00	ST204	15.0
16:20	ST206	40.0
	21.06.2004.	
08:30	PL101A	35.0
10:10	PL102	18.0
10:35	PL103B	18.0
12:25	PL105	6.0
	22.06.2004.	
07:40	PL101B	48.0
	23.06.2004.	
05:00	D1200	1200.0
14:45	D300	300.0
18:00	D100	100.0

Bios 15.06.04.-25.06.04.

Cruis:Bios 15.06.2004.-25.06.2004.; Jadran, 40 stations
Chief scientist: Lambe Stojanoski , duration: 11 days
Port of departure:Split - IOR, Punta Jurana, Port of return: Split - IOR, Punta Jurana
- Croatian National Monitoring Programme - Jadran

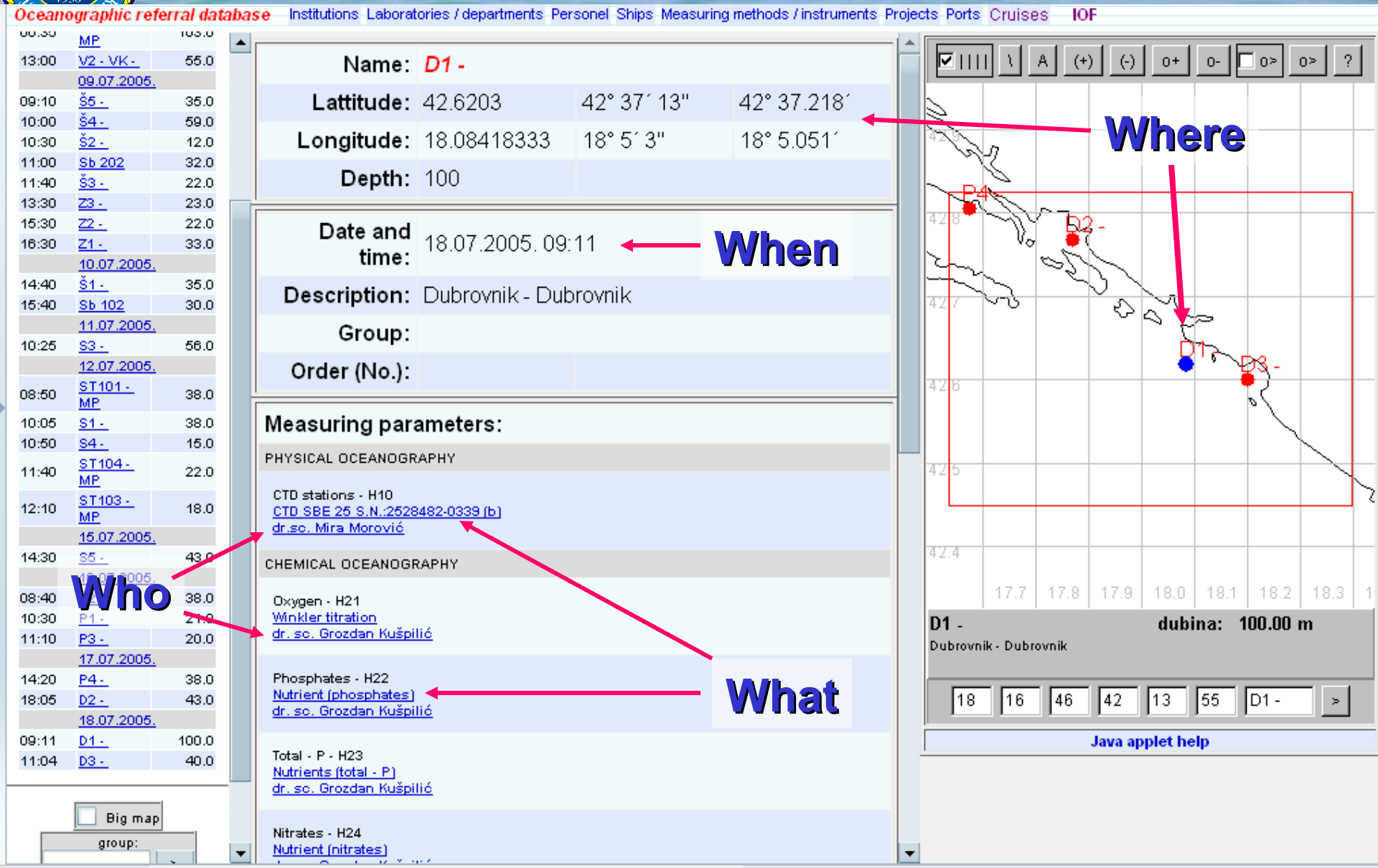
No.	time	name	depth	longitude	lattitude	no.of.par.
1	15.06.2004. 10:40	CJ007	50.0	43° 26.253´	16° 23.767´	19
2	15.06.2004. 12:50	CJ008	75.0	43° 12.265´	16° 19.021´	16
3	16.06.2004. 06:20	CJ009	102.0	43° 2.604´	16° 17.128´	19
4	16.06.2004. 15:25	CJ010	175.0	42° 36.351´	16° 16.26´	16
5	16.06.2004. 17:55	CJ011	102.0	42° 22.08´	16° 13.4´	19
6	16.06.2004. 20:05	CJ012	110.0	42° 8.31´	16° 10.42´	16
7	17.06.2004. 05:50	CJ005	110.0	42° 36.3´	14° 33.6´	19
8	17.06.2004. 08:20	CJ004	205.0	42° 47.893´	14° 48.508´	16
9	17.06.2004. 12:20	CJ003	260.0	43° 6.569´	15° 10.132´	19
10	17.06.2004. 15:40	CJ002	185.0	43° 16.92´	15° 25.15´	16
11	17.06.2004. 18:25	CJ001	168.0	43° 29.258´	15° 43.293´	19
12	17.06.2004. 20:45	ŠB205	57.0	43° 39.259´	15° 52.26´	16
13	18.06.2004. 06:15	ŠB101	12.0	43° 48.454´	15° 52.795´	16
14	18.06.2004. 07:05	ŠB103	35.0	43° 44.05´	15° 53.52´	16
15	18.06.2004. 07:30	ŠB203	10.0	43° 42.748´	15° 50.88´	16
16	18.06.2004. 07:50	ŠB201	10.0	43° 44.43´	15° 47.89´	16
17	18.06.2004. 10:30	ZD105	8.0	43° 56.649´	15° 25.653´	16
18	18.06.2004. 11:50	ZD103	26.0	44° 5.2´	15° 14.2´	16
19	18.06.2004. 12:15	ZD102	30.0	44° 6.611´	15° 12.575´	16
20	18.06.2004. 12:55	ZD101	20.0	44° 10.1´	15° 9.265´	16
21	19.06.2004. 06:50	ŠB206	30.0	43° 35.237´	15° 54.933´	16
22	19.06.2004. 08:5	[illegible]	[illegible]	[illegible]	16° 11.776´	16
23	19.06.2004. 09:35	[illegible]	50.0	43° 48.042´	16° 16.279´	16
24	20.06.2004. 07:40	[illegible]	[illegible]	43° [illegible]	16° 22.851´	21
25	20.06.2004. 08:45	ST103	15.0	43° 31.99´	16° 27.26´	21
26	20.06.2004. 09:25	ST102	28.0	43° 32.171´	16° 24.373´	21
27	20.06.2004. 09:5	[illegible]	[illegible]	[illegible]	16° 20.875´	18
28	20.06.2004. 14:15	[illegible]	[illegible]	[illegible]	16° 27.102´	19
29	20.06.2004. 15:00	ST204	15.0	43° 29.55´	16° 31.58´	16
30	20.06.2004. 16:20	ST206	40.0	43° 25.93´	16° 40.92´	19
31	21.06.2004. 08:3	[illegible]	[illegible]	[illegible]	[illegible]	18
32	21.06.2004. 10:10	PL102	18.0	43° 1.502´	17° 24.639´	18
33	21.06.2004. 10:35	PL103B	18.0	43° .044´	17° 25.428´	18
34	21.06.2004. 12:25	PL105	6.0	42° 51.91´	17° 41.676´	16



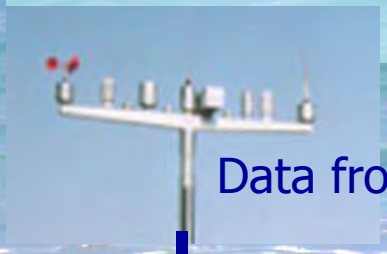
- Cruise information with mapping tool
- Frames organised
- Form – applet interaction

Done

Importance of Where, What, When and Who



Real-time circulation model



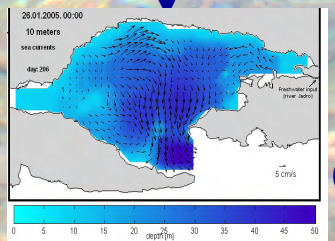
Data from automatic station

MEDAS database

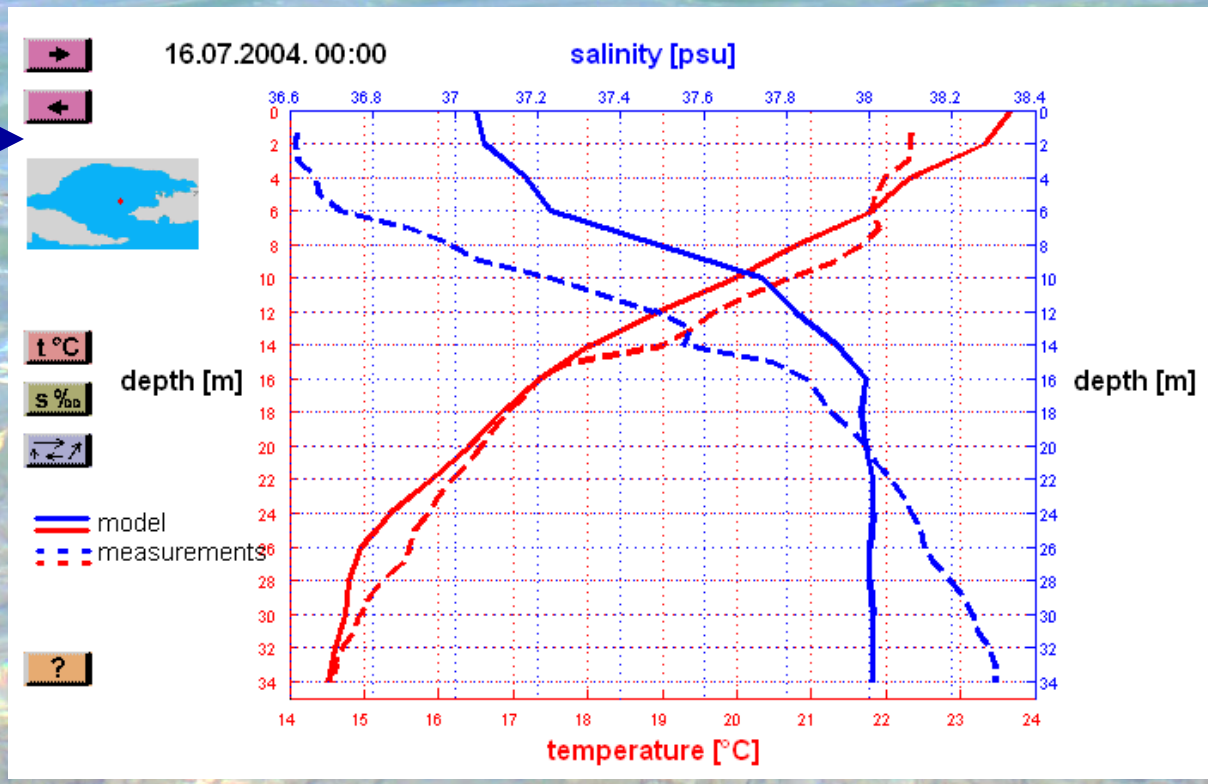
Hydrodinamic Z-model

Numeric fields

Visualisation



Output



Model verification

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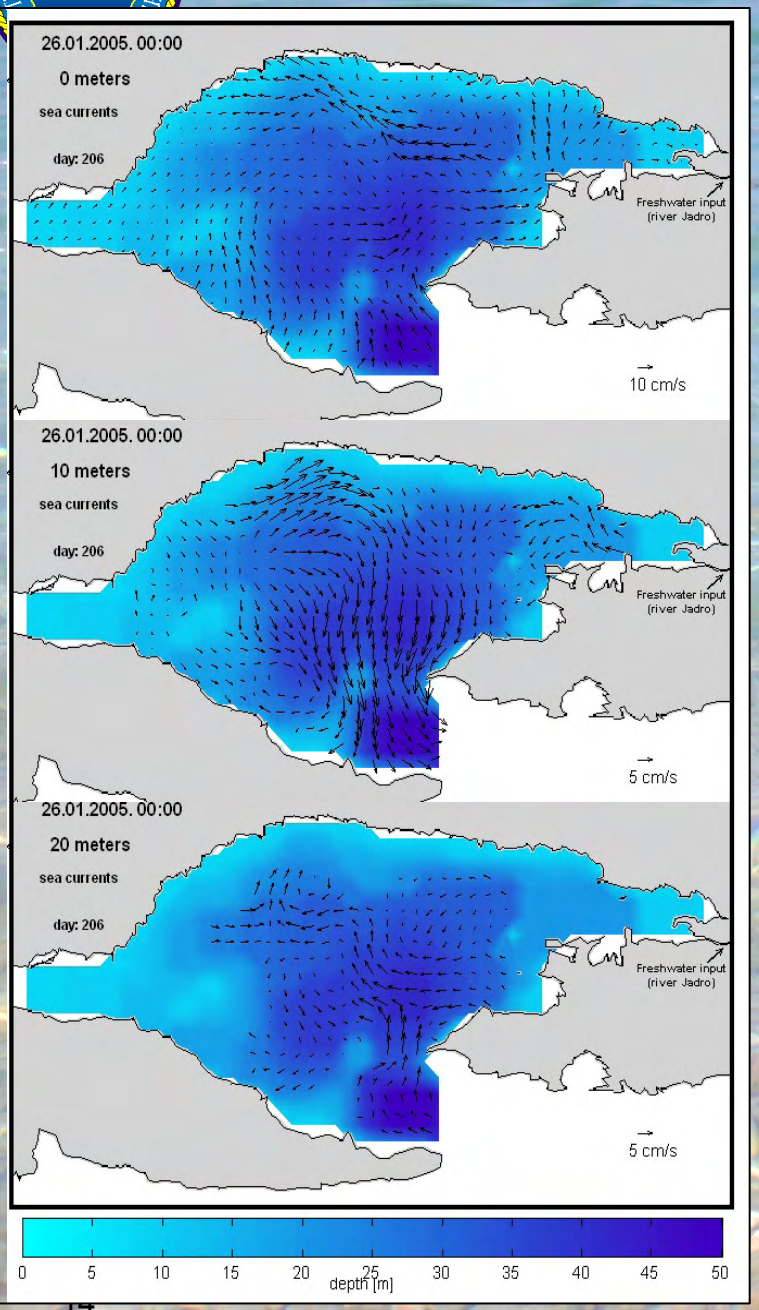
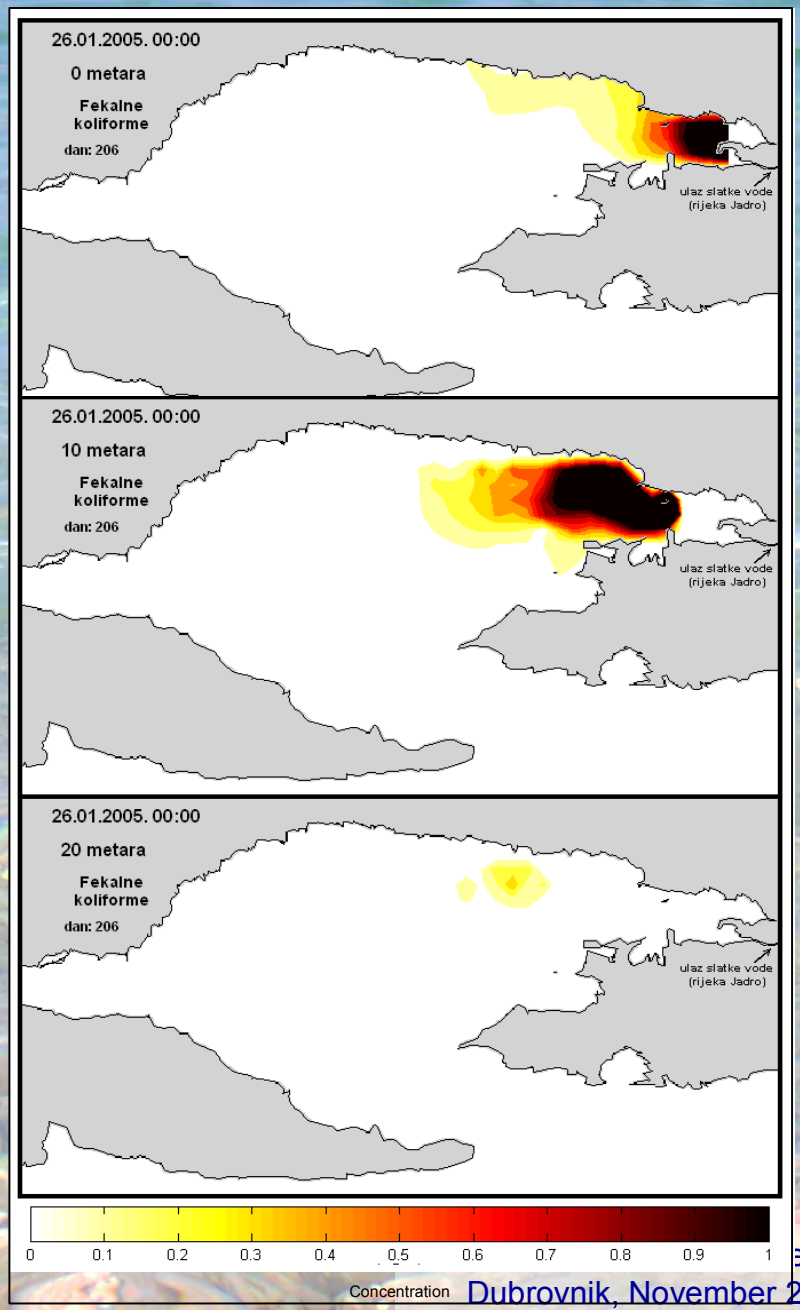
Results from model automatically published on web

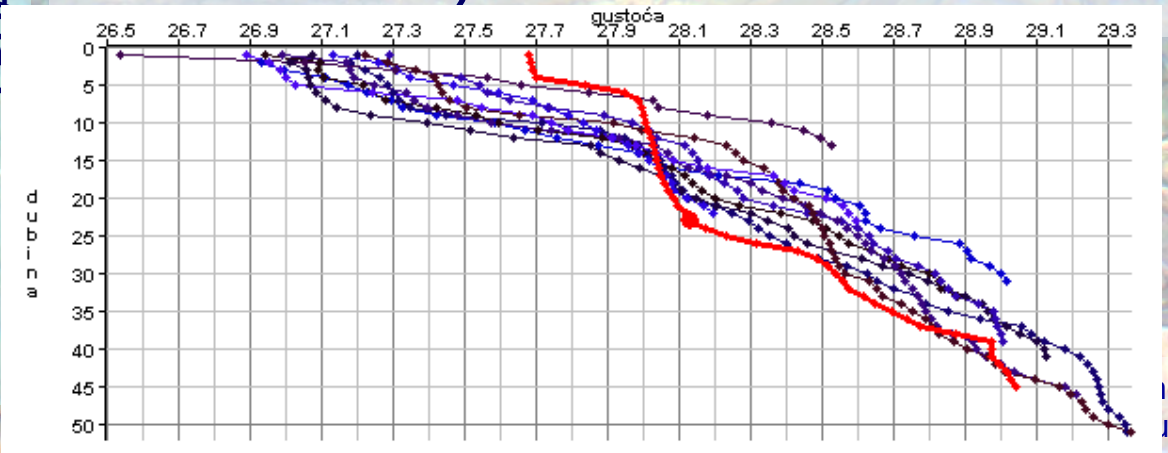




Current fields and feacal coliform

Some of benefits for Research community

- Easy and efficient way to plan, document, and control joint project with many institutions.
- Quality controlled metadata what is essential for sea research (spatial, time, and instrumentation and methods information).
- Possibility to link measured data to metadata, and quality control of measured data.
- Visualizations of spatial component (for better understanding of areas of interest), visualizations of measured data (for quality control) and various statistic reports (for analyzing data and metadata).



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Future Improvements:

- Transcode all thematic databases to web environment
- Add web GIS tools' support using marine GML
- Full implementation of IOC/EU marine data dictionary
- Fully integration of marine information and data in all thematic databases
- Improvement of data quality procedures and tools for biological parameters
- Add multimedia support