



Global Platform
for Disaster Risk Reduction Conference

5-7 June 2007, Geneva

Managing Floods for Sustainable Development

Co-organized by UN/ISDR and WMO



Flood Risk Mapping for the Danube Floodplain (FRIMADA Project)

Initiative under the ICPDR Presidency for 2007,

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ROMANIA

Presentation subject:

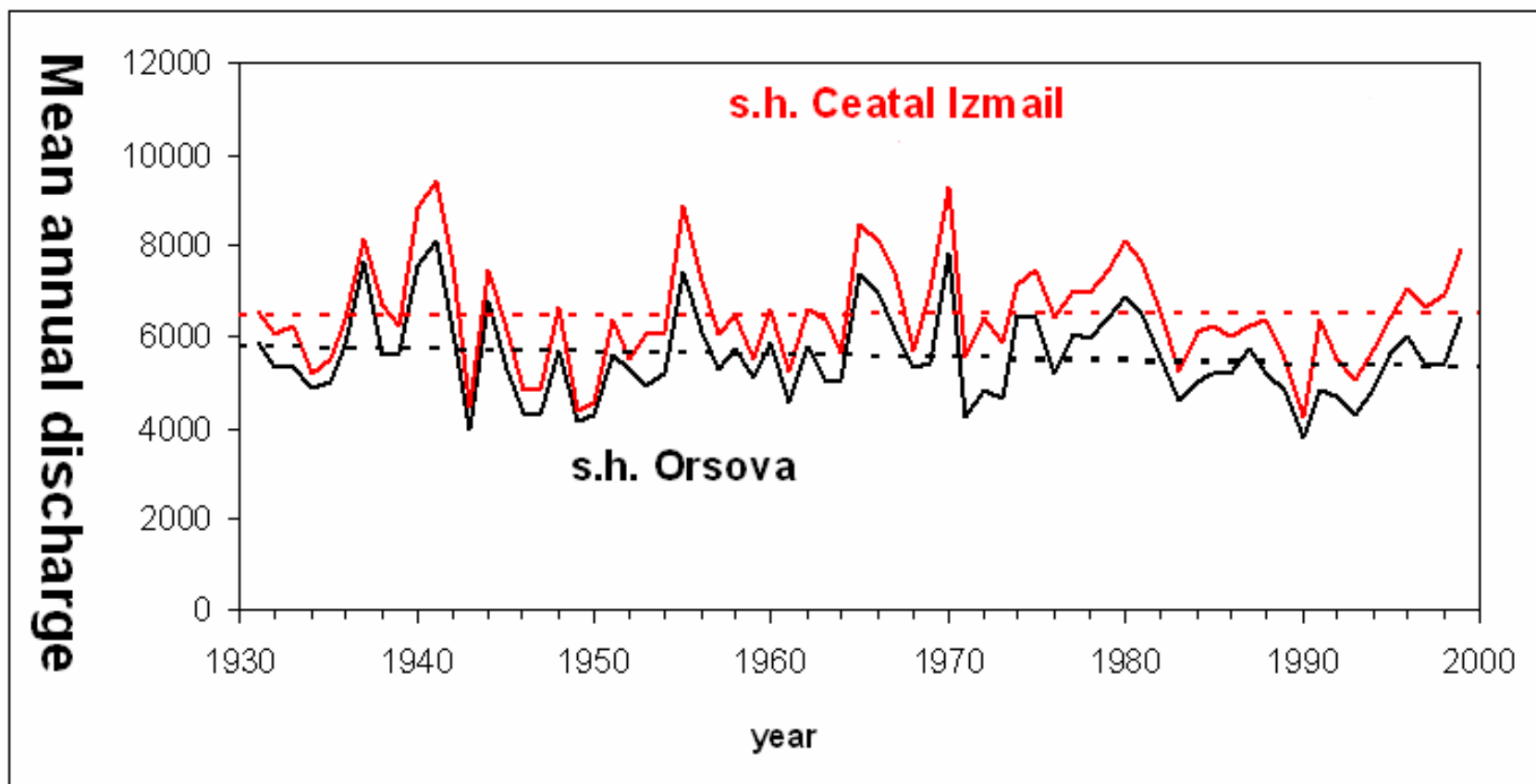
- Hydrological regime on the Danube River
- 2006 flood
- Future activities for flood risk management and for flood disaster reduction
- Presentation of the rising funds efforts for future projects

2006 flood presentation is prepared

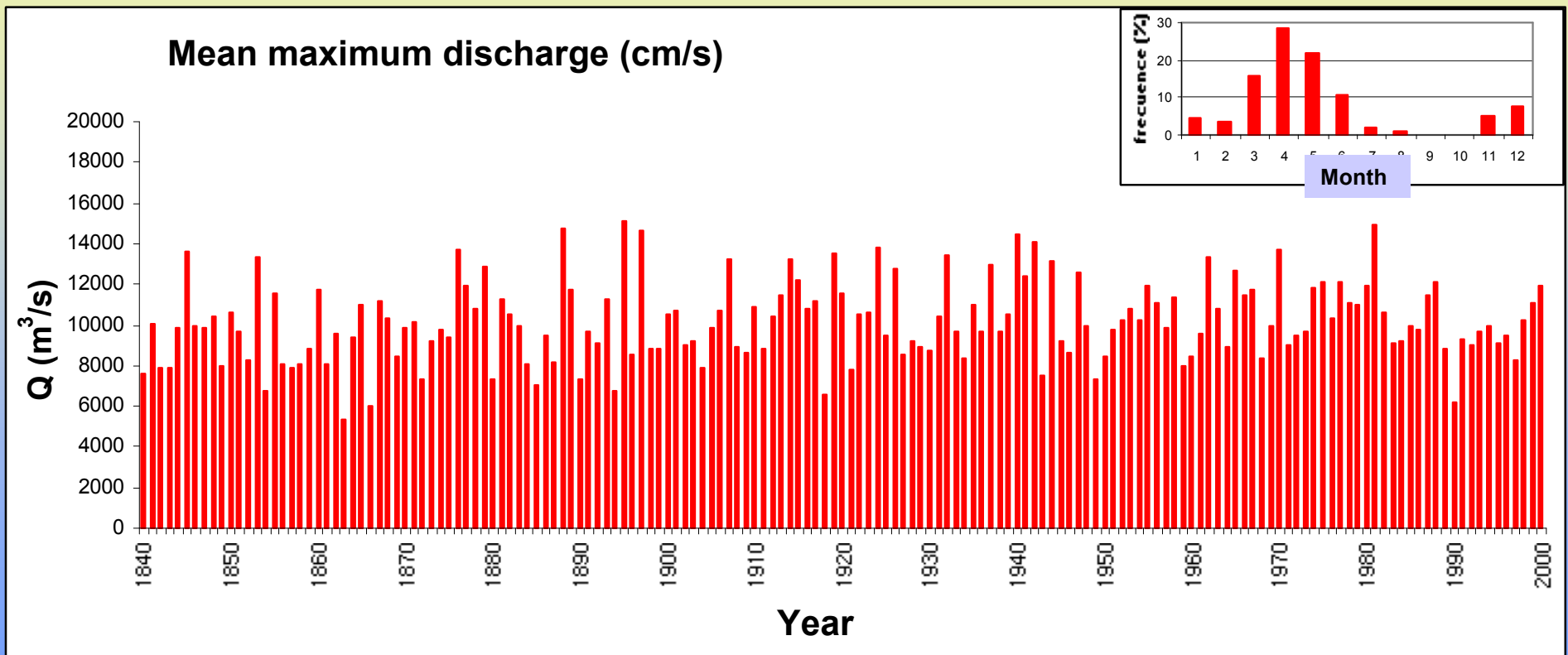
ICPDR 11th Meeting
of the **Flood Protection Expert Group**
29-30 March, 2007, Sarajevo



The mean annual discharge series of data have no tendency at Orsova or at Ceatal Ismail/Sulina

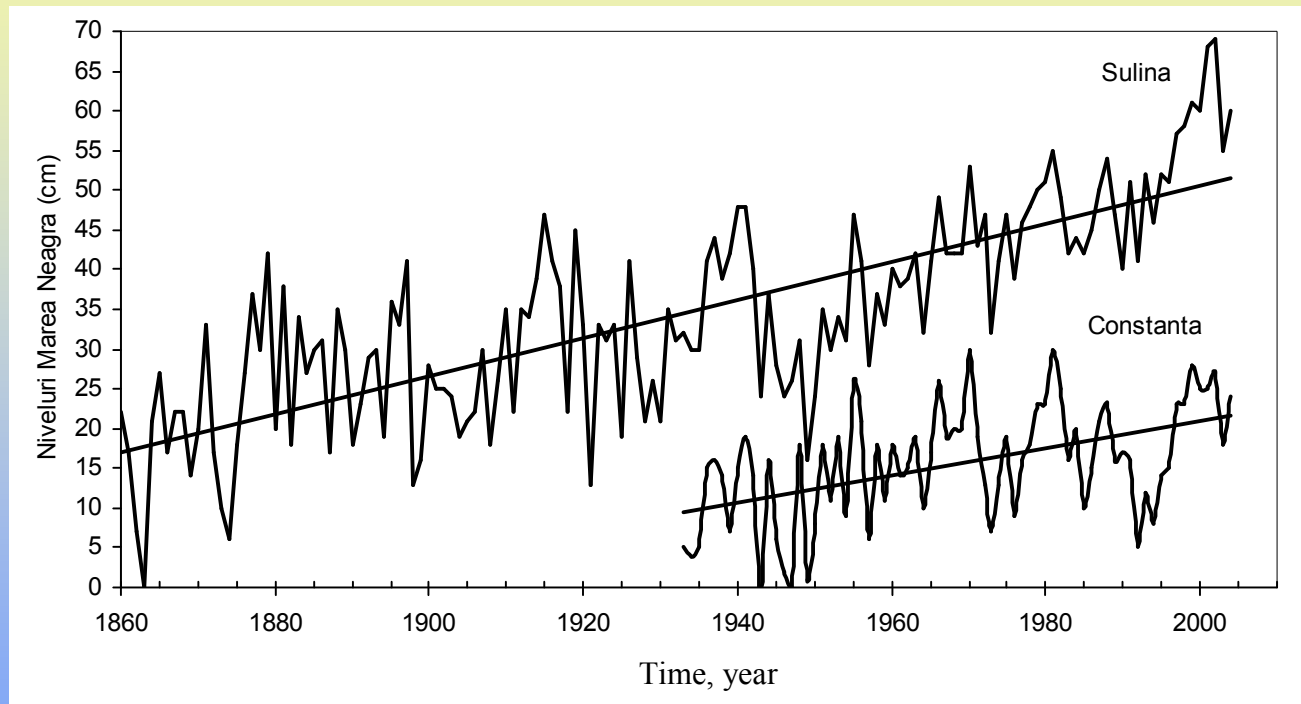


The mean annual maximum at Orsova gauging station



Years with maximum discharges: 1924, 1926, 1940, 1942, 1944, 1954, 1965, 1969, 1970, 1974, 1981, 1986, 1989, 1990, 1997, 1998, 1999, 2000, 2001, 2006

Effects and tendencies registered because of rising dykes upstream Romania and because of the climate change

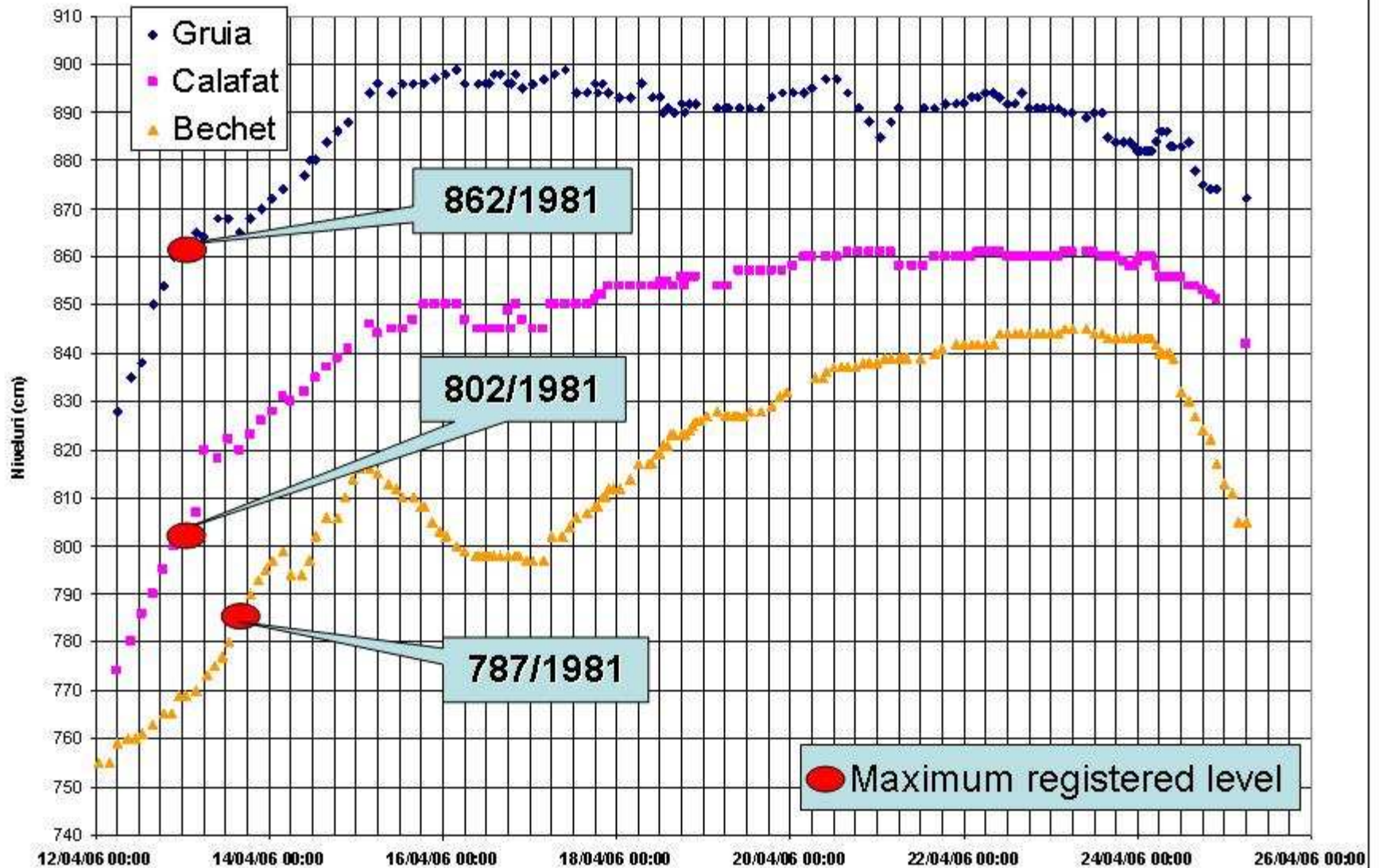


Water level variation (reference the Black Sea) and tendency during 1840-2006 period

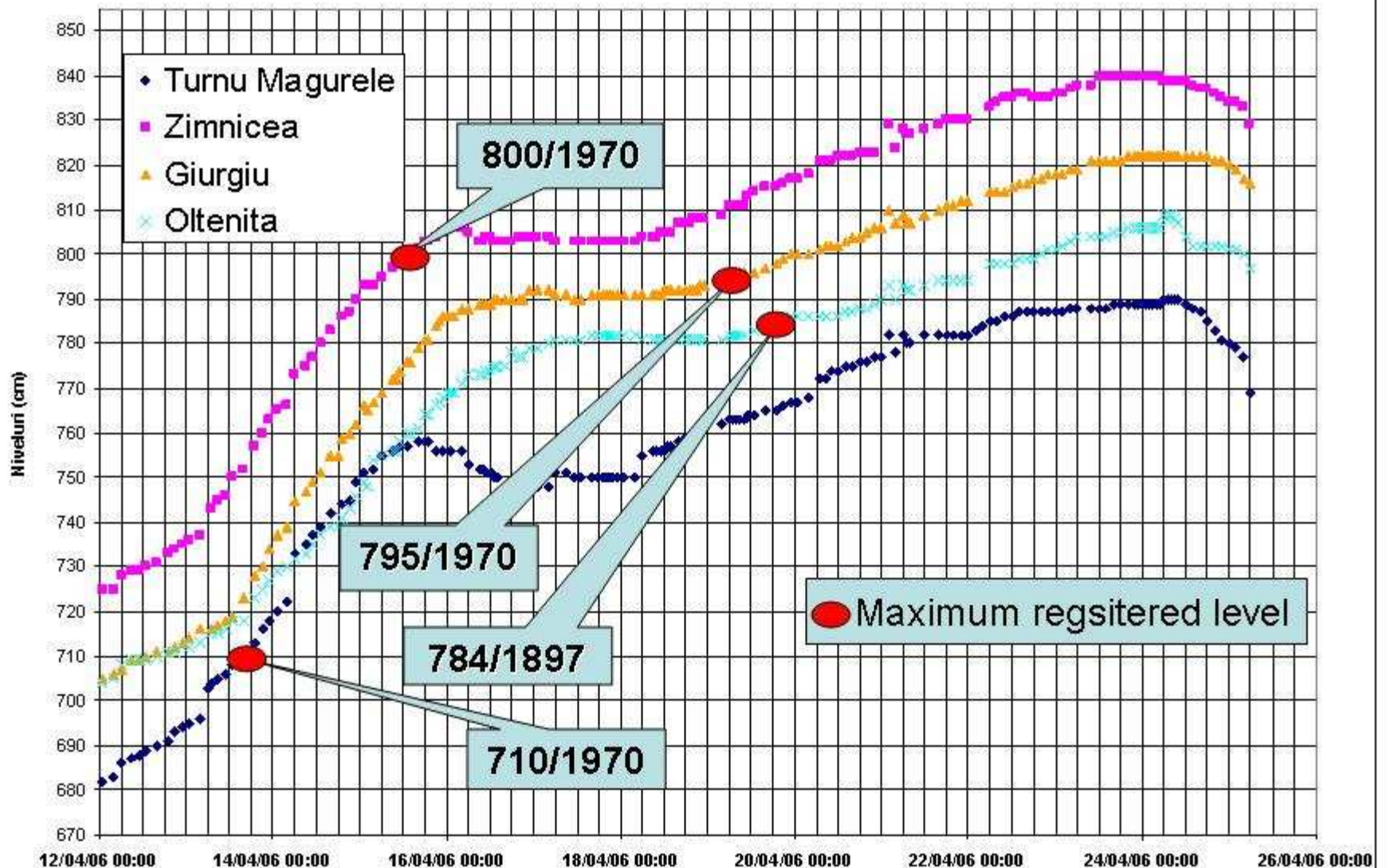
Sections: Ceatal Ismail/Sulina and Constanța

INCREASING TENDENCY with 30-40 cm

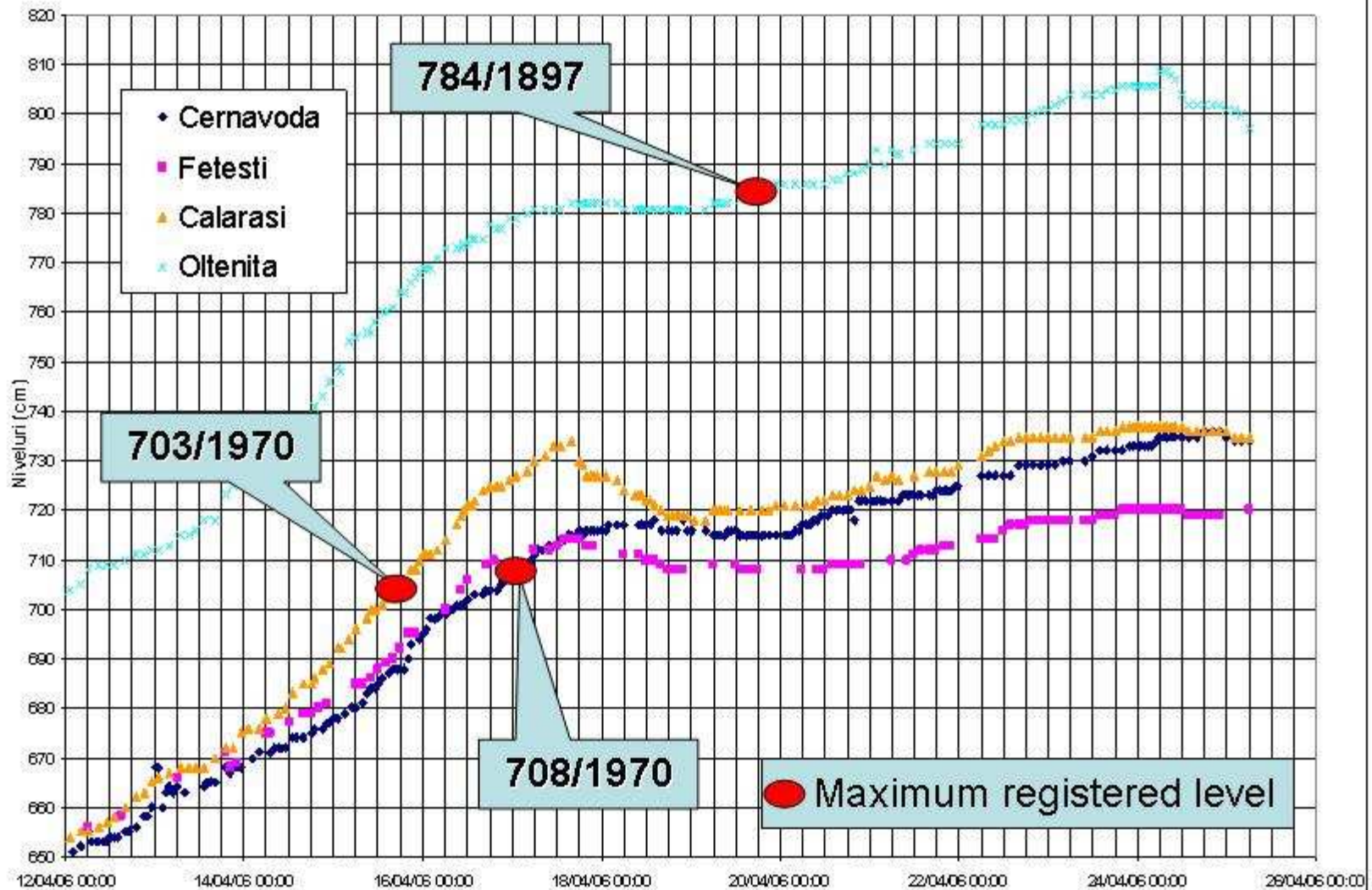
Level values on Danube at Gruia-Calafat-Bechet during the period April 12-25, 2006



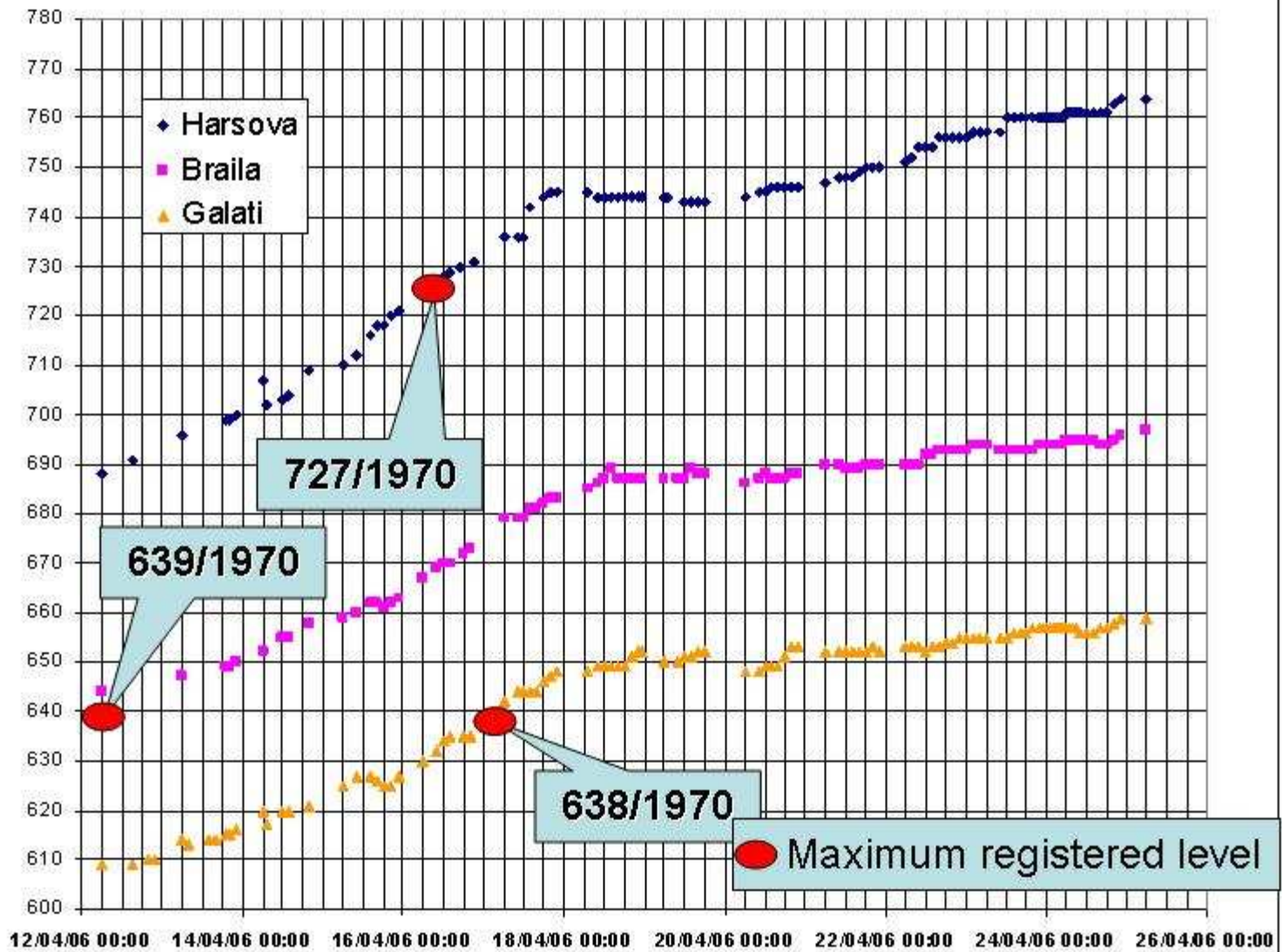
Level values on Danube at Turnu Magurele, Zimnicea, Giurgiu and Oltenita during the period April 12-25, 2006



Level values on Danube at Oltenita, Calarasi, Cernavoda and Fetesti during the period April 12-25, 2006



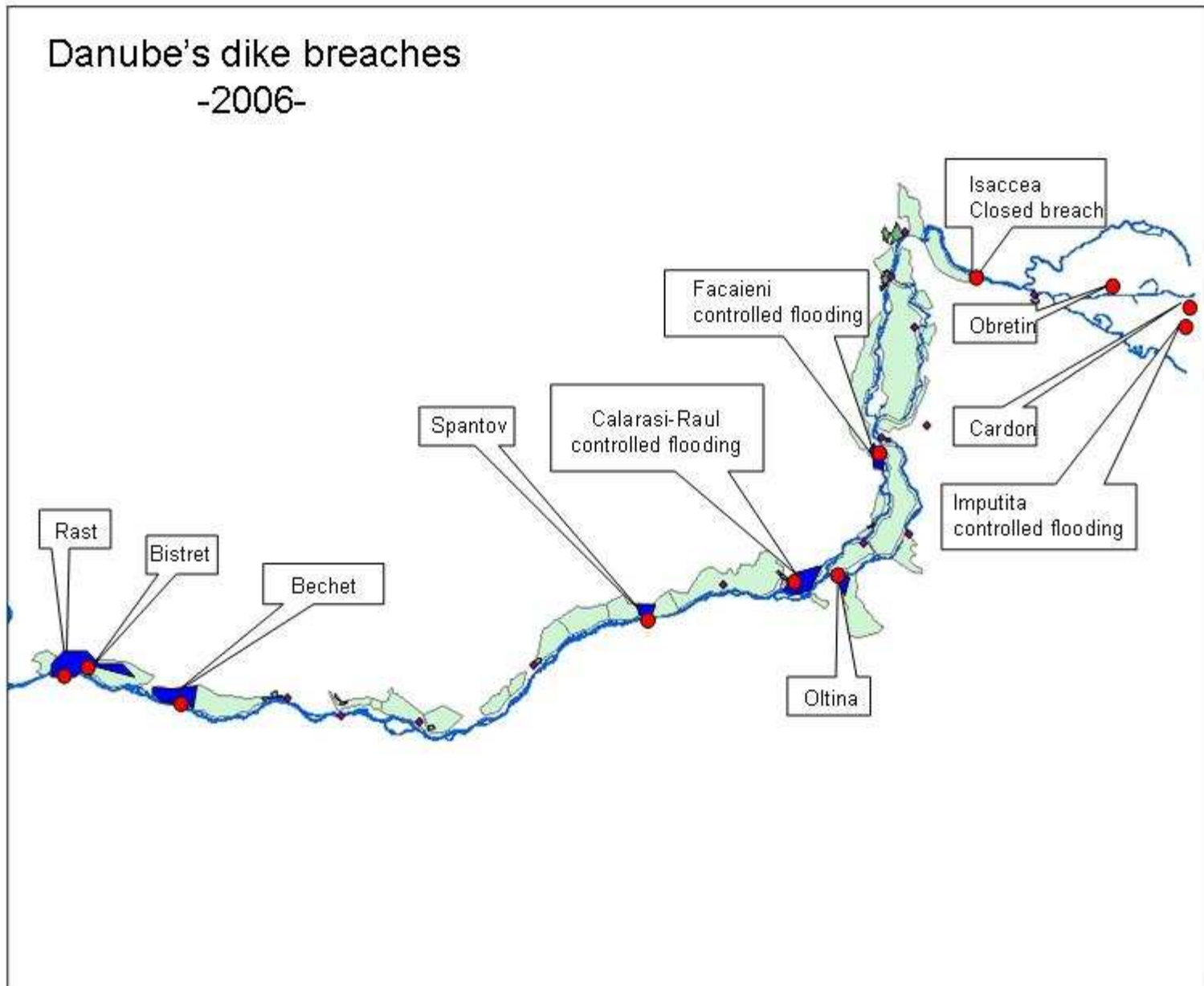
Level values on Danube at Harsova, Braila and Galati during the period 12-25.04.2006

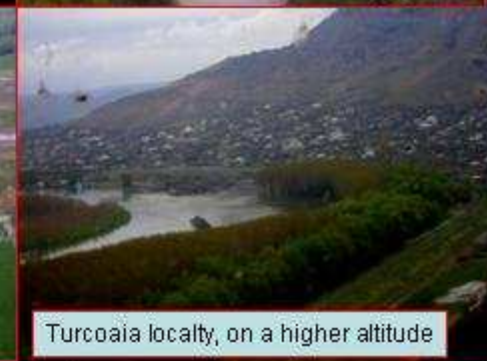


Section	Design level (cm)		Maximul registered level before 2006 (cm)	Level in 2006 (cm)			Diference of levels 2006 – maximum level 1970/1981 (cm)	Level differences 2006 – design level (cm)	
	1	5 %		Inregistrat	Reconstituit	Diferenta		1 %	5 %
Gruia			862 / 1981	899	899	0	+37		
Calafat	782	734	802 / 1981	861	865	+4	+59	+79	+127
Bechet			787 / 1981	845	857	+12	+58		
Corabia	773	711	756 / 1970	801	812	+11	+45	+28	+90
Giurgiu	804	750	795 / 1970	822	830	+8	+27	+18	+72
Oltenita	794	741	772 / 1970	809	815	+6	+37	+15	+68
Călărași			703 / 1970	737	765	+28	+34		
Cernavodă	690	644	708 / 1970	736	760	+24	+28	+46	+92
Hârșova	678	641	727 / 1970	764	792	+28	+37	+86	+123
Brăila	678	619	639 / 1970	699	724	+25	+60	+21	+80
Tulcea	458	411	435 / 1970	438	450	+12	+3	-20	+27

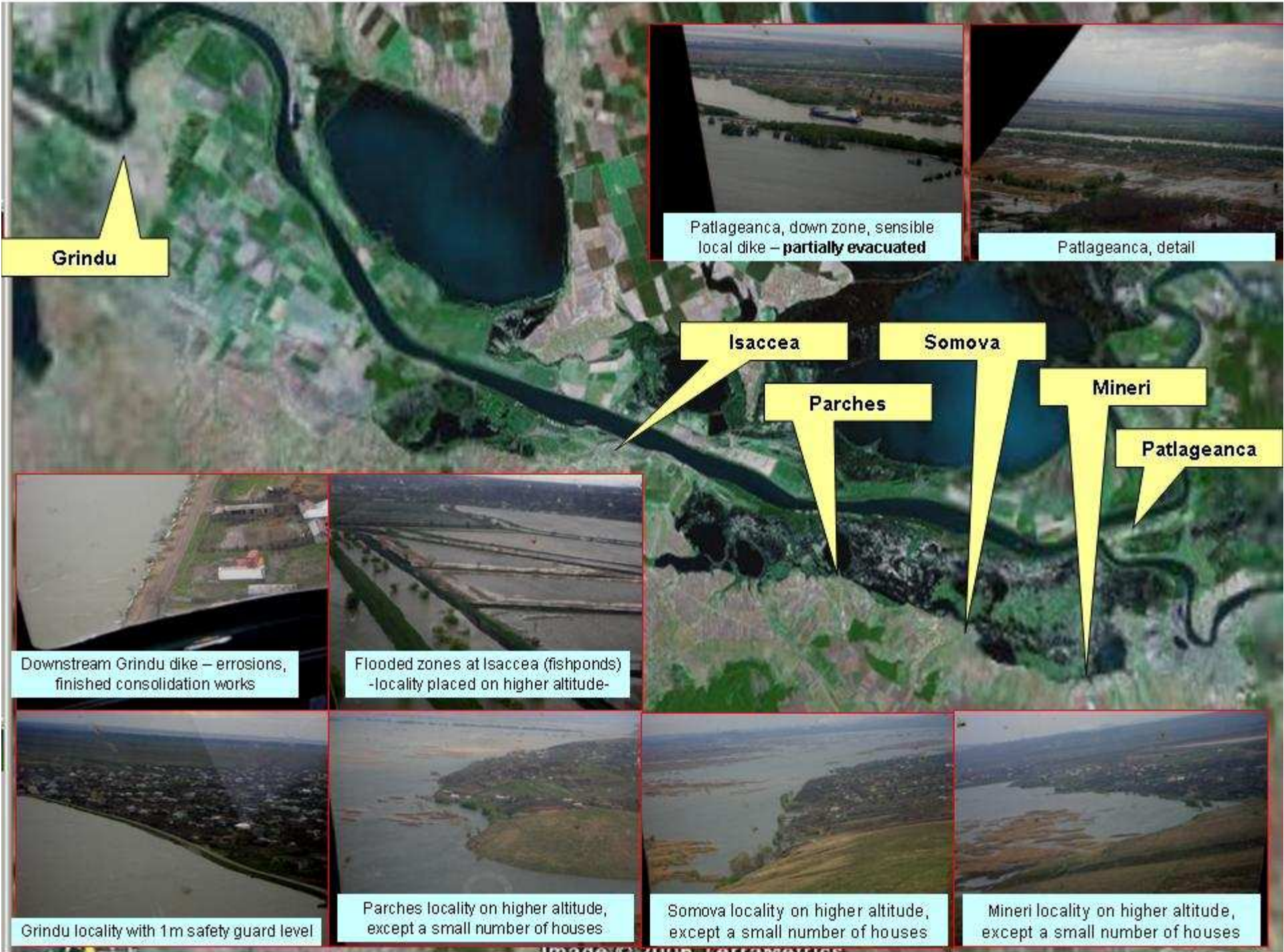
**Maximum monitored level and reconstructed in different sections along the Dunube for the Aprilie - May 2006 flood
In comparison with the highest monitored floods registered after damming the Danube and levels for designing the dykes**

2006 flood effects









Grindu



Patlageanca, down zone, sensible local dike – **partially evacuated**



Patlageanca, detail

Isaccea

Somova

Parches

Mineri

Patlageanca



Downstream Grindu dike – erosions, finished consolidation works



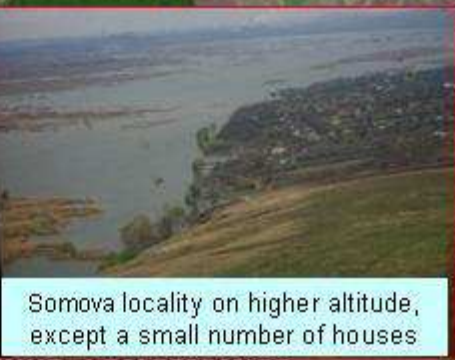
Flooded zones at Isaccea (fishponds) -locality placed on higher altitude-



Grindu locality with 1m safety guard level



Parches locality on higher altitude, except a small number of houses



Somova locality on higher altitude, except a small number of houses



Mineri locality on higher altitude, except a small number of houses



ISACCEA
13.04.2006

Isaccea zone, closed breach dike
It's necessary to continue consolidation
works





Sulina- Tudor Vladimirescu district

Possible zone for total evacuation



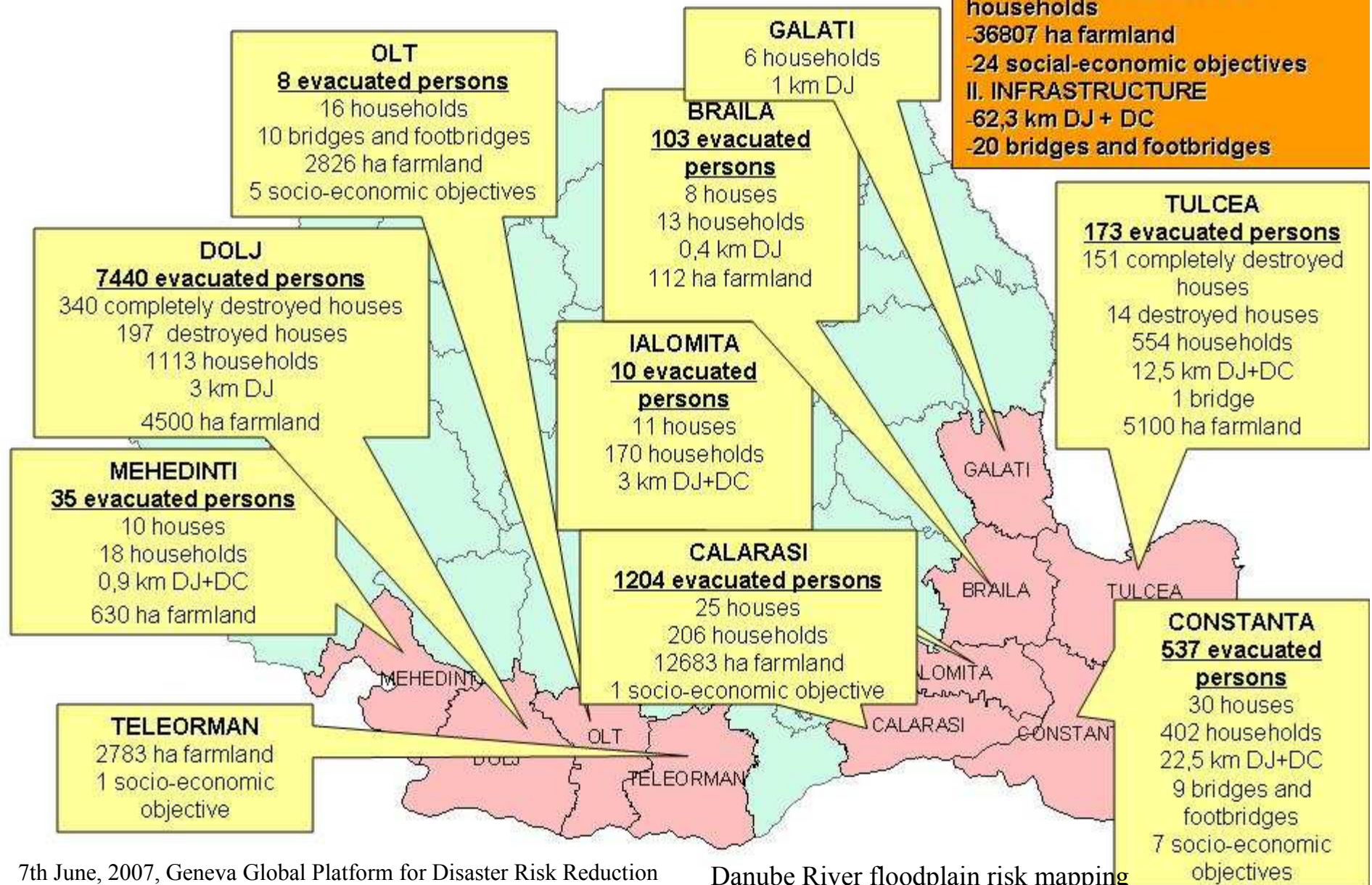
Ilganii de Sus

Possible zone for total evacuation

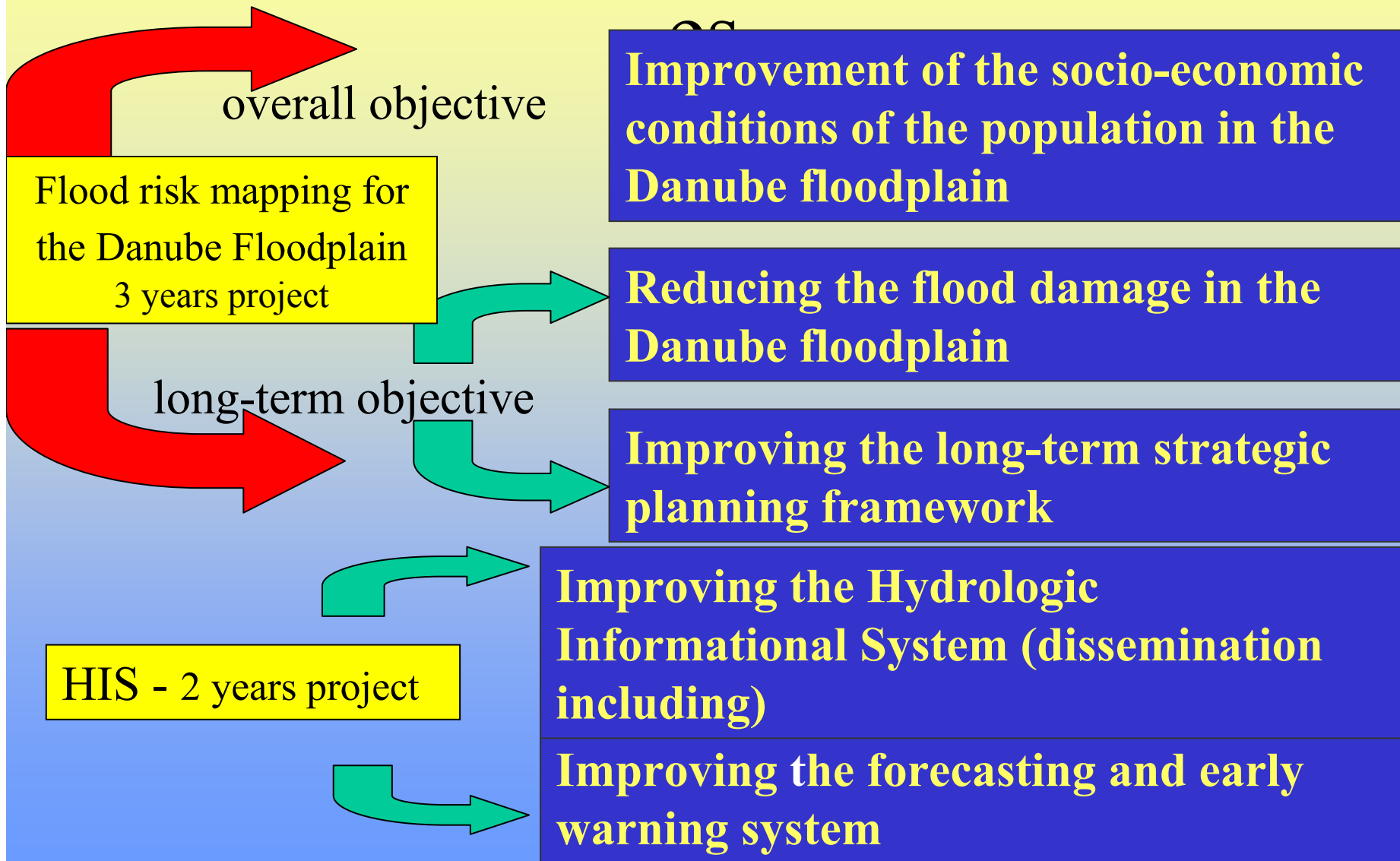


Damages situation produced by raised levels on the Danube 25.04.2006

TOTAL DAMAGES
I. POPULATION
 -9516 evacuated people
 -491 houses destroyed
 -2987 affected houses and households
 -36807 ha farmland
 -24 socio-economic objectives
II. INFRASTRUCTURE
 -62,3 km DJ + DC
 -20 bridges and footbridges



Objectiv



FRIMADA outputs and deliverables:

- Flood risk mapping for the Danube River floodplain – mapping of former flooded areas and of the lost attenuation resources of the river
- Flood protection measures prepared, evaluated, and prioritised – investigation of the hydrological and environmental impacts of the different measures
- Functionality of the tools developed under the overall project (GIS, hydraulic models, etc.) tested and evaluated
- Planning procedure, using a standard-unitary methodology, documented and evaluated
- Agreeing for flood protection measures, which will be implemented in stages (supported by funding different demonstration projects – budgeted by POS and EIB, for Romania, as example).
- Experience with public participation, gained at administrative and basin level

11th Meeting of the Flood Protection Expert Group Agreement
29-30 March, 2007, Sarajevo

- The flood expert group will give priority getting financed FRIMADA Project for the first stage
- A mid value EC Regional Development Project will be launched (5-7 mil. €)
- Some other EC projects granting solutions will be investigated during the following month
- The detailed description of the project will be provided till the end of May 2007 and will be distributed to the partner counties for consultation and improvement
- FRIMADA will be delivered for the 2007 calling for Interreg Program (most probably during August-September)
- FRIMADA Project actions will be planned in detail during Flood Risk Conference under the ICPDR Flood Expert Group coordination in Budapest, 2007

Conclusions

- It is a large effort for the countries at the Danube Basin level for flood disaster reduction, in accordance with the Global Platform Disaster Risk Reduction, it will adopted during the Geneva Conference
- It is an and politician willingness for taking actions for flood risk reduction and for fund rising to implement the first priority projects were identified by the ICPDR Flood experts group