

Hydrography at the MACHC Region

From HYPACK Inc.
Point of view



1 UNITED STATES
2 FRANCE
3 CHINA
4 CANADA
5 UNITED KINGDOM
6 BRAZIL
7 SPAIN
8 KOREA, REPUBLIC OF
9 INDIA
10 JAPAN
11 AUSTRALIA
12 RUSSIAN FEDERATION
13 HONG KONG
14 MEXICO
15 COLOMBIA
16 NETHERLANDS
17 VIET NAM
18 ITALY
19 UNITED ARAB EMIRATES
20 TAIWAN
21 NIGERIA
22 GERMANY
23 VENEZUELA
24 INDONESIA
25 PORTUGAL
26 MALAYSIA
27 THAILAND
28 EGYPT
29 CHILE
30 DENMARK
31 SOUTH AFRICA
32 PERU
33 SINGAPORE
34 BELGIUM
35 IRELAND
36 ROMANIA
37 ARGENTINA
38 PANAMA
39 TURKEY
40 NORWAY
41 UKRAINE
42 GREECE
43 SAUDI ARABIA
44 CROATIA (local name: Hrvatska)
45 OMAN
46 PAKISTAN
47 PHILIPPINES
48 URUGUAY
49 QATAR
50 MOROCCO

53 COSTA RICA
54 ECUADOR
55 KUWAIT
56 POLAND
57 AALAND ISLANDS
58 BANGLADESH
59 DOMINICAN REPUBLIC
60 NEW ZEALAND
61 GUATEMALA
62 JAMAICA
63 MOZAMBIQUE
64 NICARAGUA
65 PUERTO RICO
66 ALGERIA
67 AZERBAIJAN
68 FRENCH POLYNESIA
69 LATVIA
70 LITHUANIA
71 TUNISIA
72 CAMEROON
73 CAYMAN ISLANDS
74 FIJI
75 FINLAND
76 GHANA
77 HONDURAS
78 HUNGARY
79 JORDAN
80 LEBANON
81 MAURITANIA
82 NEW CALEDONIA
83 PAPUA NEW GUINEA
84 SLOVENIA
85 TURKMENISTAN
86 IRAQ
87 ANGOLA
88 BAHAMAS
89 SAUDI ARABIA
90 BELIZE
91 BRUNEI DARUSSALAM
92 CAMBODIA
93 CONGO, Democratic Republic of (was Zaire)
94 CYPRUS
95 GUADELOUPE
96 GUAM
97 ICELAND
98 MALTA
99 MONTENEGRO
100 NAMIBIA
101 PARAGUAY
102 SERBIA AND MONTENEGRO
103 SRI LANKA

104 SURINAME
105 SWEDEN
106 HAITI
107 BARBADOS
108 BENIN
109 COTE D'IVOIRE
110 EL SALVADOR
111 EQUATORIAL GUINEA

ESTONIA
112
113 FAROE ISLANDS
114 FRENCH GUIANA
115 GEORGIA
116 GREENLAND
117 GUYANA
118 KAZAKHSTAN
119 KENYA
120 LAO PEOPLE'S DEMOCRATIC REPUBLIC
121 MADAGASCAR
122 MALAWI
123 MAURITIUS
124 MONACO
125 MYANMAR
126 PALAU
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131 SWITZERLAND
132 TANZANIA, UNITED REPUBLIC OF
133 TURKS AND CAICOS ISLANDS
134 UNITED STATES MINOR OUTLYING ISLANDS
135 VIRGIN ISLANDS (U.S.)
136 YEMEN



HYPACK, has around
4.000 different users
among 136 countries
around the world



MESO-AMERICAN & CARIBBEAN SEA HYDROGRAPHIC COMMISSION - MACHC	
Países independientes	Miembros:
México	
Bolivia	1 Brasil
Guatemala	2 Colombia
Honduras	3 Cuba
Nicaragua	4 Estados Unidos
Costa Rica	5 Francia
Panamá	6 Guatemala
Colombia	7 Holanda
Venezuela	8 Jamaica
Islas de las Antillas Mayores:	9 México
Haití	10 Reino Unido
Jamaica	11 Suriname
República Dominicana	12 Trinidad/Tobago
Cuba	13 Venezuela
Islas de las Antillas Menores:	Miembros Asociados:
Antigua y Barbuda	14 Antig. y Barbuda
Bahamas	15 Barbados
Barbados	16 El Salvador
Dominica	17 Guyana
Grenada	18 Haiti
San Cristóbal y Nieves	19 Santa Lucía
San Vicente y las Granadinas	20 St. Kitts y Nevis
Santa Lucía	
Trinidad y Tobago	
[editar] Territorios dependientes de otros países	Otros Participantes:
Estados Unidos	21 Rep. Dominicana
Francia	22 Honduras
Honduras	23 Panamá
Mexico	24 Nicaragua
Nicaragua	
Puerto Rico	
Panamá	
Reino Unido	
Venezuela	

13 Members
7 Associate Members
4 Other Participants

What if we correlate this two?



	COUNTRY
1	UNITED STATES
2	FRANCE
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5	UNITED KINGDOM
6	BRAZIL
7	SPAIN
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9	INDIA
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	CUBA
	ANTIGUA Y BARBUDA
	SANTA LUCIA

All, but three countries have HYPACK users.

We have big, middle and small users among the region.



More than two thousand users in the twenty four MACHC Countries.

Hydrographic Data Producers	TOTAL	NHS
Organizations	2010	24
Without USA	661	23
Without France, UK, Brazil and Netherlands	179	19

NHS = National Hydrographic Services

There are 24 National Hydrographic Services of MACHC Countries using HYPACK. They represent less than 2% of our total number of users in those countries.

There are a lot of users:

- Some take guidance from NHS
- Some take guidance from IHO
- Some take no guidance

Besides that, there must be Hydrographers with:

- Other hydrographic software
- Those that do not use any.

- **In conclusion there are a lot of people conducting hydrographic surveys in the Region.**



And therefore, we could continue to ask:

- **Why are there that many Hydrographers or Companies doing Hydrography?**
- **Are they all Hydrographers?**
- **How much data do they generate?**
- **What about the quality of that data?**
- **What specs do they follow?**
- **What to do about it?**





1. Nautical Charts



2. Military



3. Dredging



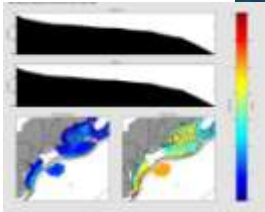
4. Hydro-electrical Companies



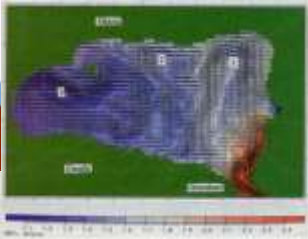
5. Riverine



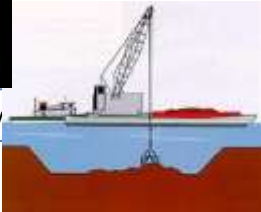
7. Ecology



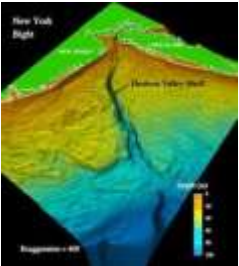
6. Universities



8. Oceanography



9. Mining



10. Marine Geology



11. Coastal Engineering



12. Ports Operations



13. Oil Industry

• Why are there that many Hydrographers or Companies doing Hydrography?

Definitely: Hydrography is not only for charting anymore!



Any of them:

- Common elements
- Specific elements

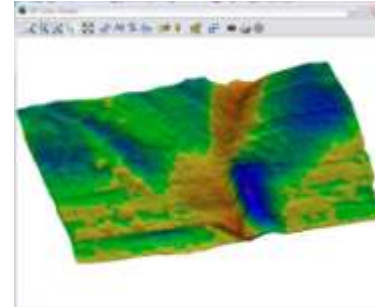
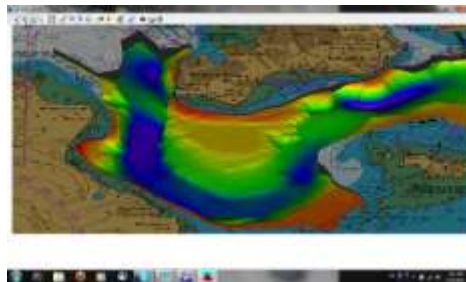
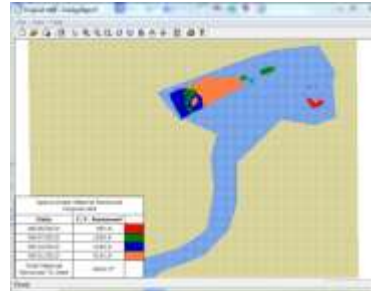
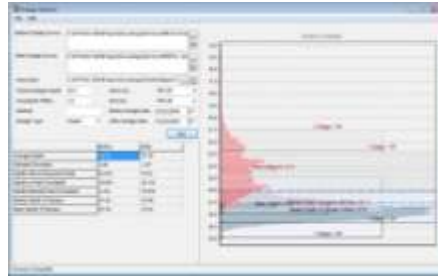
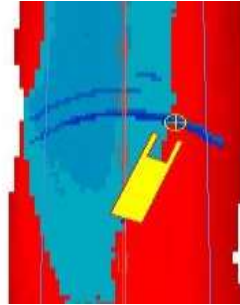
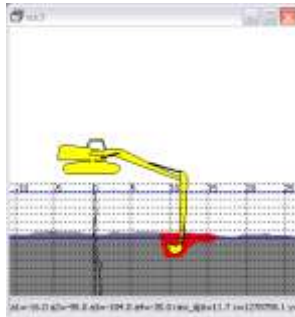
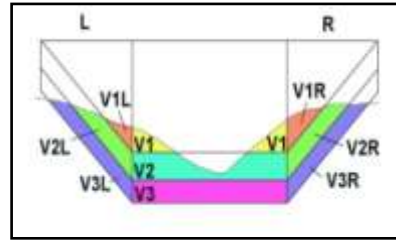
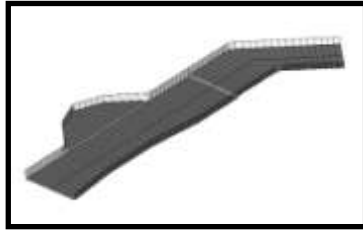
QUALITY ASSURANCE & QUALITY CONTROL

DESIGN

COLLECT

PROCESS

PRODUCTS

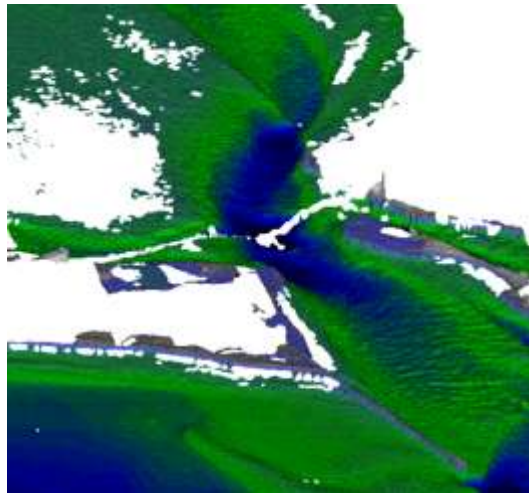
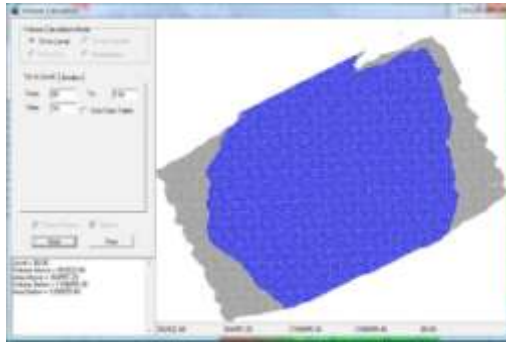
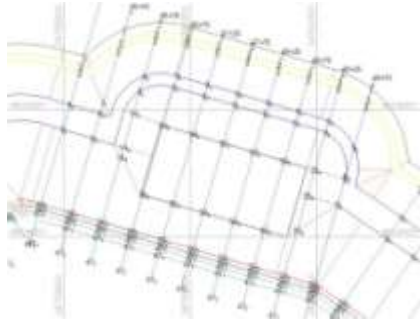
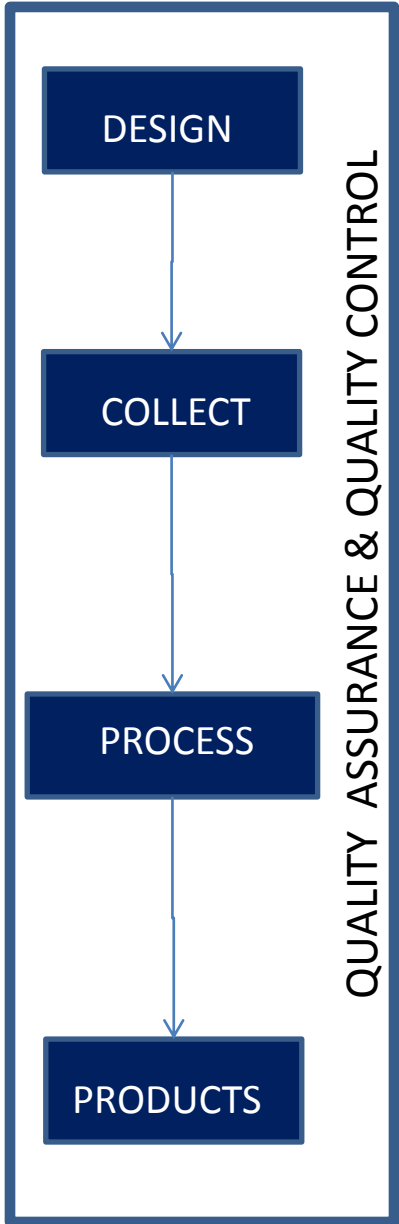


Dredging Industry

High Accuracy demands:

1 foot difference could mean a lot of \$\$\$\$



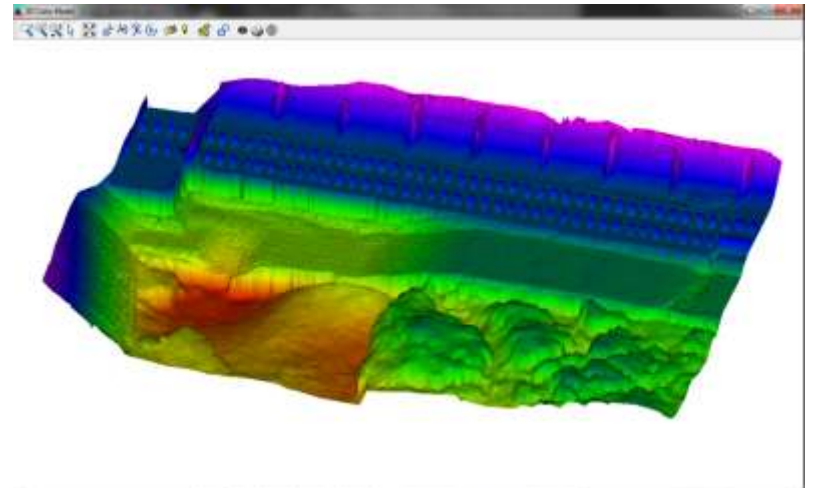
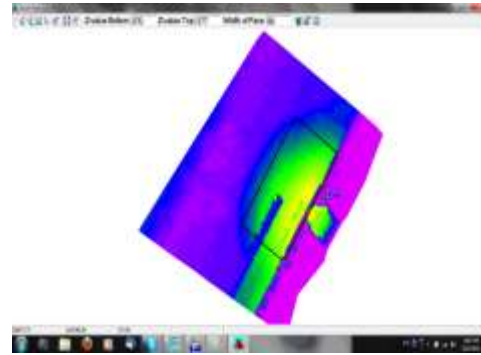


Also requires high levels of Accuracy

Dam levels calculated up to cms.



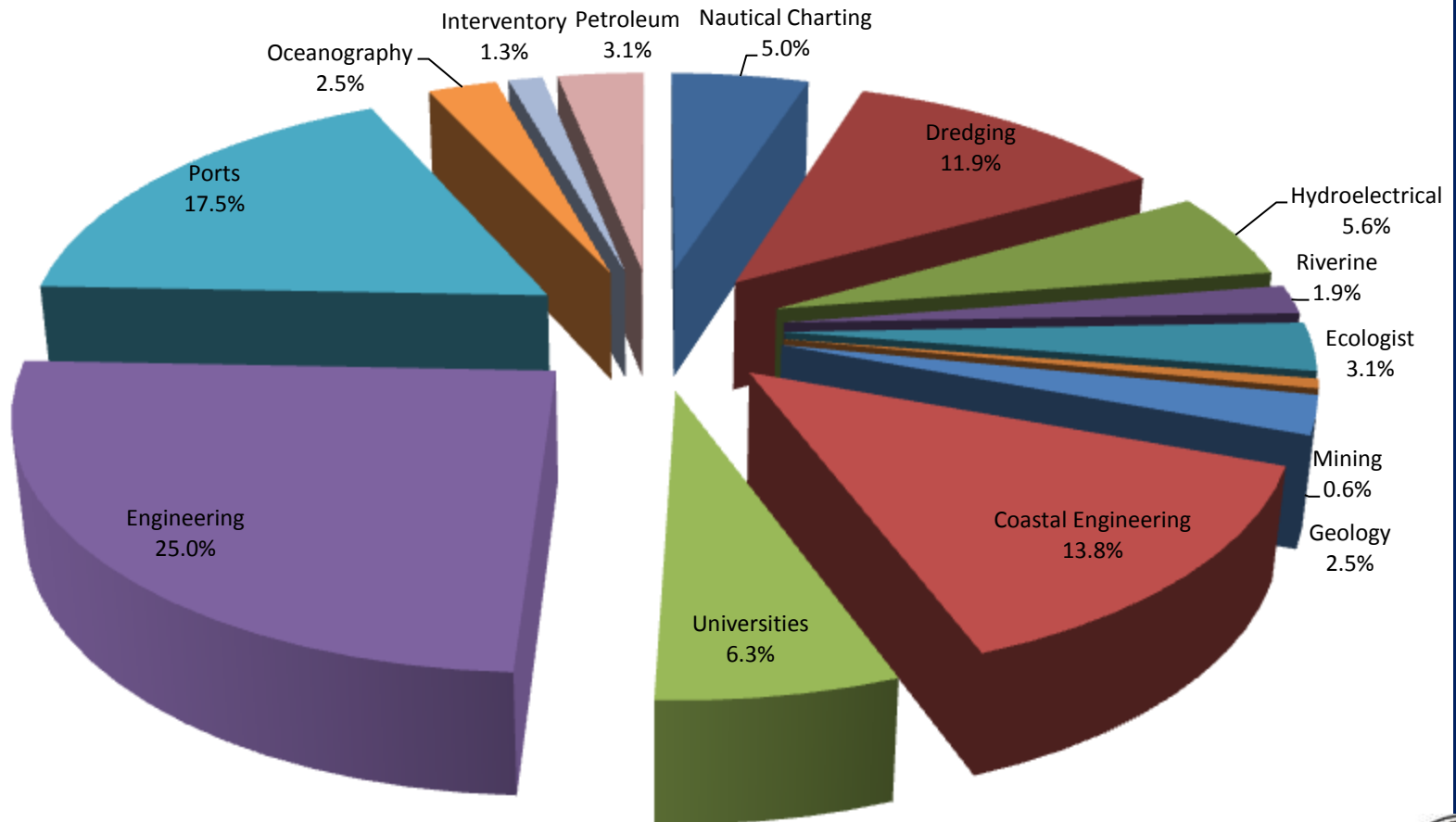
4. Hydro-electrical Companies



Just two examples...

HYPACK Users in the Region.

Classification made from our database



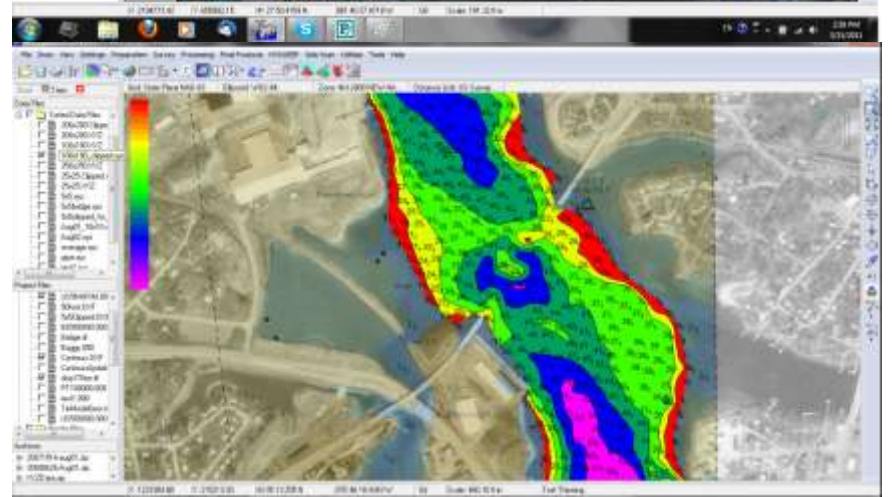
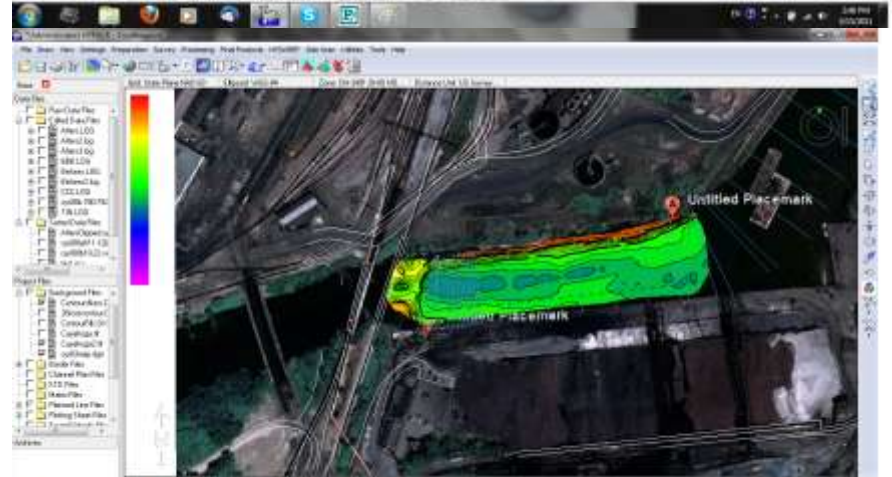
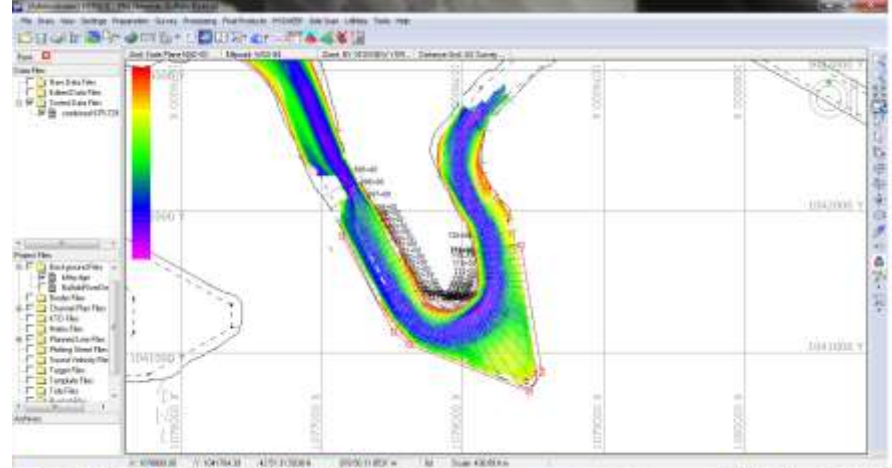
Are they all Hydrographers?

- Basically NO. They are mainly topographers, but you can find all kind of professions.
- Hydrographers comes mostly from Navy and works at the NHS.
- Some talks about RTK Tides, combining Lidar and MB, dynamic draft, etc.
- And others wants to install Tide Gauges on board his Dredge, because someone told him that Tide was important.
- Some collect data with the latest GPS, other still uses lead lines.
- Companies doesn't want to spend money in training.



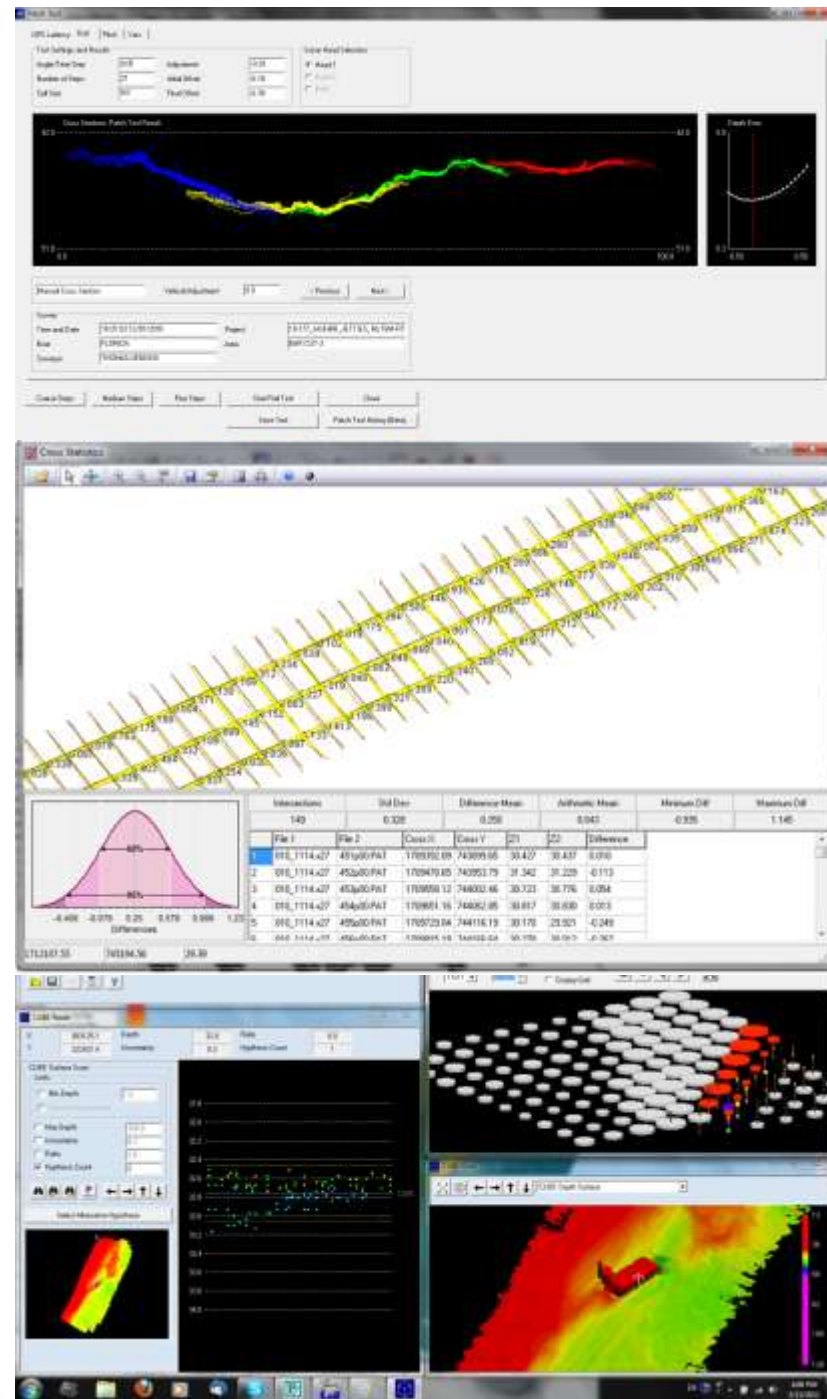
How much data do they generate?

- Less than a NHS, but several of them report to conduct between 10 to 15 surveys a year.
- Several of them have more than one HYPACK license.
- Cover small, specific areas.



What about the quality of that data?

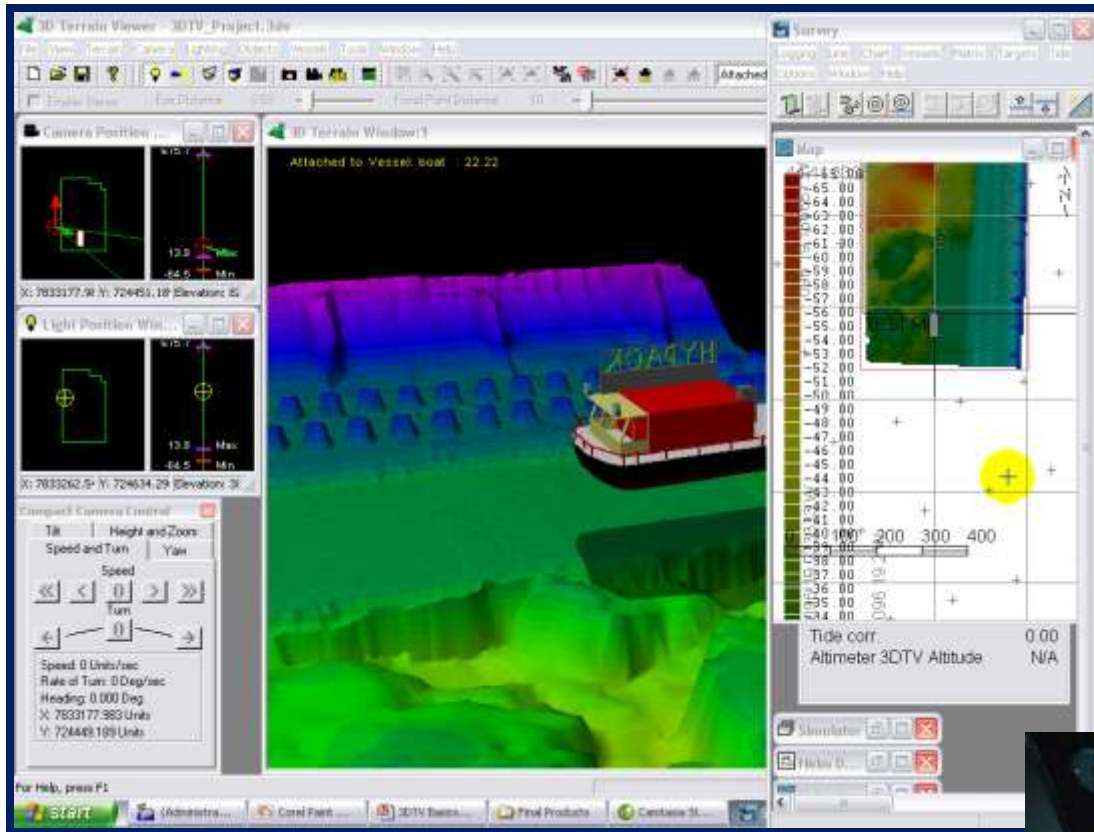
- In some cases, “magic” numbers. No metadata, no explanation about how do they obtain those numbers.
- In General, there are no requirements for QA or QC
- You can find anything:
 - Tide gauge installed on a Dredge
 - Still surveys with theodolites and lead lines
 - Also concerns about cms accuracy and high Resolution.



What specs do they follow?

- In some instances, IHO Standards. But actually, not many have heard about IHO...
- Not National Standards in most cases.





- We still believe in Magic.
- Powerful tools in the right hand works miracles, but in the wrong ones....
- Imagine the most refine scalpel in the hands of ...

What can be done about all of that?

National Capacity building Efforts.

Develop national programs in Hydrography or incorporate it into already established programs such as Topographic engineering. Short courses that can even be taken while working. Example: requirement made by the Topographical Engineering Association.

National Hydrographic Database

Collect once, use several times
QA and QC procedures
Metadata

National Specs

Following IHO standards or develop your own

Regulations

Minimum requirements for Hydrographers

Guidelines for Software developers

What to include in their Package (ex: QA and QC min req)



What about other organizations such as The Hydrographic Society Of America?

- A non-profit organization to promote education in hydrography
- Creates Similar National Organizations? Or a Regional one with National Chapters?
- Establishment of National Certification programs
- Help to create awareness...
- Help Authorities to develop regulations



Con el desarrollo de Sistemas de Información Geográfico (GIS), el uso de datos Hidrograficos se ha expandido mucho más allá de la comunidad hidrografia. Esto no solo aumenta la demanda por datos en forma digital, pero también por los metadatos a cerca de la calidad de los datos y de los métodos y procedimientos usados para la adquisición y el procesamiento.

