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Dear Capt. Essoussi:

I regret to inform you that I will be unable to attend this year's 16th meeting of the Mediterranean Black Sea Hydrographic Commission in Odesa. I will be leaving shortly for 6 weeks aboard the American icebreaker *USCGC HEALY* (WAGB-20). This will be my fourth cruise assisting my colleagues at UNH's Center for Coastal and Ocean Mapping in carrying out surveys in the Arctic Ocean in support of a future U.S. Article 76 submission to UNCLOS. Prior to my coming to Israel, I was involved in mapping the Arctic Ocean as part of my doctoral studies at Columbia's then Lamont Geological Observatory (now LDEO). I will be returning to Israel on 19th September and shortly thereafter departing for the GEBCO meeting at SHOM in Brest, followed by an Overseer's meeting at the college that my mother founded in the U.S. in 1965. I owe it to my family to be at home during a small part of the Jewish high holy days.

Below I would like to summarize our activities here in Israel since our wonderful 2007 meeting in Malta.

1) Multibeam Mappings in and around Israel

Our Israel National Bathymetric Survey (NBS) continues in its 9th year. Approximately 70% of our Mediterranean offshore has been mapped with my Kongsberg-Simrad EM1002 system aboard the IOLR 17 ton vessel *R/V Etziona*. This coverage extends from about 10 m depth to something over 700 m. Discussions with the Israel Navy have suggested that gridded data for the Israeli Mediterranean offshore might be available to non-government as well as foreign users at a spacing of 100 m.

This October and November our 280 ton vessel *R/V Shikmona* will be using a rented L-3 ELAC SeaBeam 3050 (384 beams in two pings simultaneously in the water) to map from about 700 m depth out to the limits of the 2004 IFREMER Shalimar survey off Lebanon, and the various IFREMER surveys (PRISMED, FANIL etc.) off Egypt. This survey is funded for 6 weeks, and involves an area of about 35,000 km². It will also be instrumental in doing the

base mapping for possible pipeline routes from the exciting new gas discoveries in deep water (1700+m). For this survey, and to upgrade the aging Kongsberg Seapath MRU on the *R/V Etziona*, we have acquired a Coda Octopus F180R submersible IMU. The AML sound velocity probe has also been upgraded to a Valeport MiniSV.

In 2008 we published a poster with the 6 m gridded bathymetry done in conjunction with our Jordanian colleagues at the northern end of the Red Sea's Gulf of Aqaba/Elat. This survey was carried out by the *R/V Etziona* in the fall of 2006. In 2008 a six week survey of the Sea of Galilee was carried out by the IOLR's jet-boat *R/V Lillian* using a rented L-3 ELAC SeaBeam 1180 system which produced 38 million soundings. This was published in 2009 as a poster with the 4 m bathymetric grids. These posters, including the 2006 poster of the Northern Mediterranean coast of Israel have also been separately published in the *Israel Journal of the Earth Sciences*. The data obtained by the NBS is being used by the Survey of Israel, which in partnership with the UKHO has been preparing various navigational charts of the Israeli offshore.

In early 2007 a joint survey was also carried out in the Dead Sea in collaboration with our Jordanian colleagues to map the shrinking northern basin with a rented L-3 ELAC SeaBeam 1050 multibeam sonar. The 60 ton vessel *R/V Taglit* of Gonen Marine Services was used. The extraordinarily high sound speed of 1820 m/s in the 305 m deep Dead Sea has made the analysis of the results quite difficult. However the resulting grids and poster should be published within the next 6 months. The data from this survey as well as that in the Gulf of Aqaba should be very useful for planning the proposed Red Sea-Dead Sea canal within Jordan.

All this work is a part of the doctoral studies of my student Aharon (Ronnie) Sade, at the new Leon Charney School of Marine Sciences, Dr. Moses Strauss Department of Marine Geosciences, inaugurated in early June 2009 at the University of Haifa on Mount Carmel, overlooking the port of Haifa (see <http://marsci.haifa.ac.il/>).

In May the Survey of Israel as well as Israel's Red Sea city Eilat hosted the FIG Working Week 2009 conference, which was well attended by surveyors, including a very large contingent of hydrographic surveyors from Nigeria. Ronnie Sade and I gave presentations which were written up in the July 2009 issue of *Hydro International*.

It is apparent that with the conclusion of the NBS there will be nobody in Israel ready to shoulder the costs of continuing the use of my Kongsberg-Simrad EM1002. It will therefore, in all probability, be donated to the Malta Hydrographer, as discussed in the 15th MBSHC meeting in Valletta.

2) IBCM-II - International Bathymetric Chart of the Mediterranean 0.1' gridded data.

In 2008 GEBCO finally agreed to seek bathymetric data and actually compile certain areas at a grid spacing of 0.1' (≤ 182.5 m). The CIESM Medimap Group, headed by IFREMER's Benoît Loubrieu, has released its dataset for approximately 55% of the Mediterranean at a spacing of 500m. Hopefully, with time, this resolution will be increased to the desired 0.1' for inclusion in the IBCM-II.

On June 29, 2009, NASA and Japan's METI released their ASTER GDEM (Version 1) of gridded 30 m data for almost all of the world's land areas. This is almost an order of

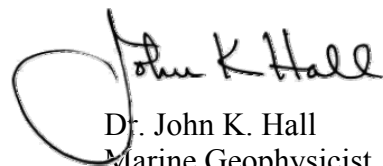
magnitude improvement over the previous SRTM3 90 m dataset. While not without its difficulties, this dataset vastly improves the land coverage available to the IBCM-II compilation, especially in areas of low relief such as northern Egypt, the Adriatic, and northern Black Sea. No doubt in future there will be further improvements. These events, together with the availability of much higher resolution land coverage in Google Earth, as well as the new bathymetric datasets like the new GEBCO_8 0.5' grid available to Google Ocean, as well as even higher resolution grids in GeoMapApp (<http://www.geomapapp.org/>), will hopefully persuade data-holders to release their gridded datasets. It has been repeatedly shown that as the realization and appreciation increases of what is actually publicly available, so does the demand for better data. This is very important for the hydrographic community.

I continue to be deeply involved with the Israel NBS as well as the Blodgett-Hall Polar Presence (<http://www.polarhovercraft.no>) where our specially-built 13 m research hovercraft, the *R/H Sabvabaa*, is now in its second season operating on the permanent Arctic icecap north of Svalbard (see my various *Hydro International* Insider's View columns). As I am already in my 70th year, I expect to see these activities either completed, or at least my participation greatly decreased. In retirement I expect to get back to the IBCM-II and the task of generating 0.1' grids between the high resolution land data and the deep water swath bathymetry. To this end I have also been busy scanning with a Contex Crystal HS42 106.6 cm scanner all the materials I have gathered in almost 40 years in Israel, and my 8 years at WHOI and LDEO. Altogether over 15,000 maps, charts, and other graphical documents have been scanned and are available digitally. Similarly an active program is underway of producing pdfs from older reports and scientific articles.

IBCM was the first of the eight IOC-IHO IBCs, or International Bathymetric Charts. It is also the only one to have made all the requisite overlays, namely Bouguer Gravity, Magnetics, Seismicity, Recent Bottom Sediments, as well as Plio-Quaternary (post-Messinian Mediterranean desiccation) structural contours and isopachs. Some years back, I also scanned very good quality copies of the 1:1 million and 1:5 million sheets of the IBCM and its Geological/Geophysical Overlay Sheets, printed by the Head Department of Navigation and Oceanography (HDNO) of the Russian Navy in Leningrad. These raster files are now available for download from NOAA's National Geophysical Data Center. Use the downloadable images button at: <http://www.ngdc.noaa.gov/mgg/ibcm/ibcmprods.html>.

I wish you every success in your deliberations in Odessa. I will also miss your warm camaraderie. Please convey my very best regards and wishes to my MBSHC colleagues.

Sincerely yours,



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