

Newsletter No. 44

Web Edition

June 2011

Melanie Thom – Newsletter Editor (MelanieAThom@cs.com)

The International Association for Stability, Handling and Use of Liquid Fuels, IASH, was founded in 1986. The purposes of the Association are to promote research and experimentation on the scientific and operational factors that affect the stability and handling of liquid fuels during their manufacture, blending, transportation, storage and use; and to provide a forum for the exchange of related ideas and information. Liquid fuels include crude oil and its refined products; products derived or processed from oil shale, tar sands, coal and natural gas; and reformulated fuels such as those containing oxygenated components.

To accomplish its purposes and to promote a better understanding of the problems associated with the stability and handling of liquid fuels, IASH publishes a biannual newsletter, sponsors international conferences and publishes their proceedings. The Newsletter provides members with a medium for publishing notes on research in progress, discussing a problem that has been encountered with the stability and/or handling of a fuel, or commenting on some related technical issue of a general interest. IASH is an international, non-governmental, interdisciplinary, volunteer association. Membership is open to all individuals and organizations subscribing to its purposes.

Further information pertaining to IASH, including membership and availability of past conference proceedings, is available from the secretariat:

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A Note from the Chairman

By Robert E. Morris, US Naval Research Laboratory

I'm really excited about our upcoming conference. I recall where we were two years ago at this point, when Graham Hill was addressing our serious concerns over the impact of travel restrictions due to swine flu, the poor global economy and wide fluctuations in the Dollar versus Euro exchange rate, on attendance to our last conference in Prague. Despite those concerns, the program was strong and I think most of us consider that conference a great success. This year, the global economy is still in recovery mode but there are fewer of these issues to contend with. We have a great venue in Sarasota, Florida for our 12th International Conference and our budgetary concerns are minimal this time around.

Another possible sign of an improving economy is the exceptionally strong response we received from our call for papers. I know we say that for every conference, but it was really substantial this year. Of course, we have limitations on how many presentations we can accommodate in four days, and some of our members may recall when we tried concurrent sessions. However, no one liked that approach as it forced members to choose between jet and diesel issues. Anthony Kitson-Smith has done a tremendous job of formulating a program that accommodates an unprecedented 64 presentations compared to the 52 we had in Prague. In order to do this, some of the session times have been stretched a bit and questions will be held until the end of each session. We also have a very comprehensive poster session this year and we hope to be able to keep the posters in the exhibit room so that they will get more visibility. Anthony speaks to the program in greater detail in his column and if you haven't, please take the time to review the program at www.iasn.net.

Despite continuing economic uncertainties, we have seen a continuation of the high level of sponsorship that we have seen in the past, and I would like to thank the following companies for their support:

Gold Sponsor: ExxonMobil Aviation, Fuel Quality Services, Inc.

Silver Sponsors: Air BP, Energy Institute, Parker Hannifin, Platinum Fuels, Pratt & Whitney, Shell Aviation, US Defense Logistics Agency-Energy, US Naval Research Laboratory.

Exhibitors: Bruker Optics, D-2 Incorporated, ECHA Microbiology, Falex Corporation, Intertek Commodities, KAM CONTROLS, PAC, PAMAS GmbH/Masley Gloves, Seta Analytics, University of Dayton Research Institute.

As always, the latest developments in aviation fuels, marine fuels, automotive fuels, fuel cleanliness and analytical methods are all covered but there remains a substantial focus on alternative fuels and biofuels. I'm also gratified to see that we have more fundamental chemistry in this year's program, something that I was unsuccessful in doing for our last conference.

I would like to remind our presenters to please be careful to avoid specific product endorsements in your technical presentations, as that violates our rules. I recognize that there is often a fine line and this can be a matter of perspective. If you have doubts you can go to your session chair or either Anthony or me for an opinion.

I also want to encourage any members who haven't yet, to please register for the 12th IASH Conference as soon as possible. This helps us greatly in our last minute planning and allows us to more efficiently make those last minute commitments without overpaying if we have to guess as to how many attendees we will have. Our conference in Tucson in 2007 was attended by 190 delegates and I'm confident that we will achieve Anthony's goal of breaking that record!

One of my goals during my tenure as Chairman has been to provide our members with on-line access to as many of our operations as possible. We have made a lot of progress in that area, with the IASH library, and other things. In addition, this is the first conference in which we have implemented an on-line submission process for abstracts and papers. I strongly encourage all of our members who are presenting papers at this conference to take full advantage of this resource. This creates a single repository for all conference materials and alleviates the confusion that is created when papers are revised and/or submitted to multiple people within IASH. This also helps take some of the burden off of Shirley Bradicich to collect and forward submissions, who is already extremely busy with last minute arrangements and contingency planning. If you don't have or have misplaced the links to submit your paper online, contact Shirley.

With such a busy week, I'm glad to hear that we have cleared the last hurdles in having a beach party on Thursday, as our closing reception. The weather in Sarasota in October is typically stellar, so the outdoor venue should be a welcome respite before we all leave for the plane ride home. I look forward to seeing you all in Sarasota.

1st Vice Chair's Article

By Anthony Kitson-Smith, ExxonMobil Aviation

Well, here we go again. We are on the runway waiting for take-off of the 12th IASH conference in Sarasota, Florida this October. A great deal of ground work has already been done and the final preparations are well in hand to make this a great conference. It is only when you are part of the process that you get to see firsthand the huge amount of work that is done behind the scenes by various members of IASH and the support team at Meeting Expectations. It is the attention to detail from this dedicated team that is truly impressive. We are blessed as an organization by the "backroom team".

As I write this article, we are still somewhat in the midst of the economic downturn, but I am enormously pleased to say that we have had a great response to the call for papers. We probably have a record number (no doubt Shirley could tell me) and it has been a challenge to read all the abstracts, sort them and then try to fit them into a coherent program. I am extremely grateful to the Chairman, Bob Morris for assisting me with the first pass on this as I was (as always it seems) travelling around the world during the first quarter.

Although there is still a lot of heat in the alternate and renewable fuels developments, I chose the conference theme of "the sustainability of liquid fuels", because the reality is that we will still be using liquid fuels derived from conventional sources (crudes oils, condensates etc) for many years to come. However, these sources are finite and it is important to consider how we can sustain our energy demands that are linked to economic growth, in conjunction with the predicted increase in population over the next two decades. (another billion or so people.)

The key to sustainability is the application of technology across all fields, so although we will continue to see great efforts in the alternate and renewable sectors (and rightly so) the penetration of these sources of liquid fuels into the overall demand for liquid fuels will probably be a relatively small contribution over the next decade or so. We will need to marshal some of our technology focus on the conventional fuels and how these can be used more efficiently, this applies to manufacture, distribution, storage and use – so mainstream IASH interest.

The program for the 12th IASH conference is a very varied one across the four days. I am hoping that the Chairman, Bob Morris, has got the Wednesday morning firmly in his diary, as there is a

great session on properties, chemistry and viability of fuels. Bob is a strong supporter of more fundamental chemistry and there is a lot to entertain the research chemist in this session. However, we kick off on Monday with a key note from Robert Gardner, who is the manager of Corporate and Strategic Planning for ExxonMobil. I have heard Robert speak with passion about the energy outlook based on a complex model that looks at energy demand across about 100 countries in detail across every energy-use sector, and every fuel type. The model looks at macro factors such as population and economic trends, and more specialized areas such as agriculture demand and fertilizer production. The model can identify emerging trends in any country or sector including for instance, the economic downturn on individual countries as it relates to demand; or emerging issues such as the growing potential for substantial supplies of unconventional natural gas. We should be entertained by Robert's delivery, but we will also be very well informed about the key factors that influence the sustainability of liquid fuels. Day 1 then focuses on renewable fuels and carbon neutrality in the morning and challenges in distribution, storage and use of today's and tomorrow's fuels in the afternoon.

We should perhaps call Monday of IASH 2011, "Super Monday", because if you think the day is already a full and interesting program, the evening is equally important. We have a bumper poster session with 20 contributions across the entire spectrum of interests, from crude oils to Jet fuel, storage stability and analytical methods, alternate fuels and additives. We are very fortunate indeed to have these contributors and to ensure things are adequately lubricated; I would like to thank the US Naval Research Laboratory for their sponsorship of this session.

To start our Tuesday morning, we have another Keynote. I am very pleased to confirm that Dr. Troy Campione, the Senior Vice President of Corporate Development for Joule Unlimited will talk to us on the promise of Solar Fuels. Dr. Campione leads business development strategy and execution for Joule. His extensive background in the fields of biotech and cleantech spans more than 20 years. Prior to Joule, Dr. Campione served as Senior Vice President of Business Development for Solazyme, a developer of algal-derived biofuels and other products. He previously spent more than six years at Symyx Technologies as GM and Vice President of Collaborations, Alliances and Licensing, and 15 years at ExxonMobil in a variety of business, operations and technology leadership roles across a range of Exxon's energy and chemical technologies. He brings a wealth of experience in bringing new technology to the marketplace. His talk will lead us into the morning session on Aviation fuels, today and tomorrow. In the afternoon we'll get into some filtration and then analytical methods (the first of two sessions on this subject.)

After the second session on analytical methods on Wednesday afternoon, we have an excursion into middle distillate and heavy oils to get us in the mood for the Gala Dinner. An event you just don't want to miss.

The marathon continues on Thursday with sessions on additives, performance enhancement, long term storage stability and then the final session on fuel microbiology. You might be wondering about marathons at this point, but I have to tell you that I'm having a year off of running marathons so to speak. Although from a family standpoint we'll be trying about one and a half marathons. See the Members News for details.

I will end by echoing Bob Morris's recommendation to register for the conference as early as possible. October will be upon us before we realize and we must all spread the word about IASH and the increasingly critical role our Association will play in the production, handling and use of liquid fuels, as we enter a new era of energy utilization. See you all in Sarasota!!

IASH News -

IASH On-Line Library

By Shirley Bradicich, IASH Administrator

The IASH On-Line library can be accessed by all members through the IASH web site (www.iash.net) by following the link to the IASH Library. Please contact Shirley Bradicich at sbradicich@iasn.net if you have problems accessing the library. The library includes all past Conference Proceedings starting in 2000 through 2009, as well as all IASH Newsletters. The Proceedings of the 2011 Conference will be added in January 2012.

IASH Individual Memberships

IASH Memberships will expire in January 2012 and will need to be renewed at that time. The membership fee will remain the same at \$200 for a two-year period from 2012-2013. Notices will be sent to members in December who do not attend the IASH 2011 Conference in October. Those members attending will automatically receive membership with their conference registration.

Changes in Board Membership

We want to welcome Dietmar Posselt of BASF SE as a new Supporting Member of IASH. Dietmar is based in Ludwigshafen, Germany. E-Mail: Dietmar.posselt@basf.com

Kim West has resigned from the IASH Board of Directors as she leaves her position at the US Department of Energy to move to her hometown of Seattle, Washington. She will be working for BP Pipelines and Logistics.

Linda Gallaher of Chevron Global Aviation has also resigned from the Board of Directors. In addition, Chevron will no longer be a Supporting Member of IASH. We thank Chevron and Linda their many years of support. However, Chevron continues to support the John D. Bacha Scholarship Fund with an annual donation of \$1,000. John's wife, Jane Bacha, also donates \$1,000 every year. The fund provides monetary support for students to attend a conference and present their papers.

In Memoriam

We were sad to hear of the passing of Yael Geva after a long illness. She was the wife of Dr. Joseph Geva, who is with the Israel Institute of Biological Research. Joseph and "Yosi" Geva attended many IASH conferences and we send our condolences to Dr. Geva and his family.

Obituary of Edmund William White, PhD

Edmund "Ed" White passed away on March 5, 2011. Ed was an Honorary Member of IASH and a founding member of the Association. He served on the Association's Steering Committee from 1986 until his retirement and actively participated in the conferences through 2000.

Ed was born in Philadelphia, PA, on July 8, 1920. He received a BA/BS/MS from the School of Engineering, Columbia, and his PhD from Lehigh University. He was active in the Potomac Curling Club.

Ed served as an officer of ASTM Committee D2 for many years, including 6 years as chairman. He was also an early pioneer in the areas of fuel stability and cleanliness. Since he worked for the

Navy, his emphasis was on marine fuels but he always worked to make advancements where he could. Ed and his colleagues at the Navy, primarily the labs in Annapolis, did most of the work to develop the test conditions and correlations that are now used as D 4625, storage at 43°C.

Ed was a section leader in ASTM Subcommittee E, chairing section 3 on gas turbine fuels as well as sections on alternative diesel fuels and marine fuels. In his work within Subcommittee E, Ed always kept the science at the forefront insisting on sound data to back up important changes.

Anthony Kitson-Smith Receives Award at NPMA Conference

Anthony Kitson-Smith was honored with the NPMA Black Gold Howard Gammon Award at the recent National Petroleum Management Association Petro Meeting held in San Antonio. He received the award for his lifetime services to Aviation Product Quality from the President of the NPMA – Gomer Custer.

This award came as a big surprise to Anthony. Jack Lavin the NPMA President had come up with some very creative reasons why Anthony should stay in San Antonio rather than leave early to join the IATA meeting in Singapore. As a result Anthony enjoyed the early Texas mornings running along the picturesque River Walk in San Antonio.



So is he preparing for another Marathon? “Well.....” said Anthony, “not exactly, although you could say being the conference chair at this year’s IASH will be a bit of a marathon, but actually I am only running half marathons this year. (more marathons next year.....?) The best one is just before the IASH conference on October 9th. I am running the London Royal Parks half marathon

with my wife and son – a real family event. We are trying to raise money for Cancer Research Charities again. So please support us. Our website is www.bmycharity.com/kitsonsmithsmarathon

ECHA® Microbiology Ltd. Has Moved

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For nearly thirty years, ECHA® Microbiology has provided expert consultancy and analytical services globally to the petroleum, engineering, marine and aviation industry, specializing in the problems caused by microbial spoilage and corrosion. Over that time, they have developed a range of test kits enabling engineers and product quality managers to monitor their operations on-site. ECHA have now outgrown their existing premises in Cardiff UK and will be relocating to a larger, state-of-the-art laboratory and manufacturing facility on 1st April. This move will ensure that ECHA continue to satisfy the growing demands of their customers and accelerate new developments to their range of products and services. A new training facility will provide the ideal environment for learning about microbial problems in fuels and oils, and how to test for and treat microbial contamination. From the 1st April all enquiries, orders and samples for testing should be directed to the new address.

Technical News -

Aviation Fuel Filtration Update

By Paul P. Wells, ExxonMobil Research & Engineering

There have been a number of key developments in the aviation fuel filtration area worthy of note.

A 2nd edition of the Energy Institute (EI) 1582 similarity specification is nearing completion. Similarity is a methodology which permits the transfer of EI 1581 qualification from one filter water separator (FWS) system to another based on key criteria such as mean linear flow rate, liquid entrance velocity, etc. In order to minimize the number of full-scale tests required, most filter manufacturers obtain EI 1581 laboratory qualification on the more challenging filtration configurations and use these as the bases to qualify installed configurations via "similarity". Currently, each filter manufacturer generates and supplies their own, unique similarity sheet. The format and location of key parameters varies widely, making the comparison of similarity sheets from different filter manufacturers difficult. The EI 1582 update (2nd edition) will mandate the use of a standard similarity sheet available in spreadsheet format complete with extensive drop-down menu items. Other changes include the elimination of the little used Simplified Flow Model and the addition of a mandatory requirement for positive water drainage within the vessel. The new similarity sheet will help users, auditors and suppliers to ensure a FWS system is compliant with the requirements of EI 1581 whilst enabling interchangeability of different manufacturers' elements.

The 6th edition of the EI 1583 filter monitor specification was issued in January 2010. A total of 17 lab qualification tests are included in the updated specification. Two of these qualification tests require the capture and quantification of any super absorbent polymer (SAP) originating from the filter monitor. This is a report only requirement. The latest edition of the EI 1583 specification also includes qualification tests to evaluate salt resistance, element conductivity and end cap

adhesion. Like the previous edition, the 6th edition prohibits the use of EI 1583 filter monitors with fuel containing Fuel System Icing Inhibitor (FSII). Manufacturers are currently attempting to qualify filter monitors against this latest edition of the specification. As of this writing, one manufacturer, Facet, has successfully qualified a 2-inch element.

A 2nd edition of the EI 1598 electronic sensors specification is in development. Unlike the 1st edition, the 2nd edition will define specific laboratory conditions against which to test the response of an electronic sensor. Sensors are to be exposed to particulate matter and free water (separately and in combination) as well as a significant water slug. Sensor performance limits (e.g. measurement accuracy, response time) will not be specified in this edition but manufacturers will be required to report the response of their instruments under the specified test conditions. The sensor manufacturers subsequently will be able to claim only "evaluation", not "qualification", against EI 1598. The intent of the test protocols is to generate for system designers/implementers the results necessary to understand sensor response to anticipated field-like conditions.

Workforce development let team go from “automatic” to “manual” during crisis

By Pam Serino, US Defense Logistics Agency

Reprinted by permission from the DLA Newsletter

By the DLA Energy Pacific’s Japan office

A Defense Logistics Agency Energy team in Japan recently demonstrated how workforce development can empower a team to go from “automatic” to “manual” to achieve mission success during a natural disaster like the one that befell Japan in March.

The events of March 11 rocked Japan and reverberated around the world. Officially, it was named the Great East Japan Earthquake or the Great Tohoku Earthquake, for the Tohoku region it impacted. At 9.0 on the Richter scale, it was the greatest earthquake to hit Japan and one of the five most powerful earthquakes registered since recordkeeping began in 1900. Approximately 30 minutes after the earthquake detonated, a series of massive tsunami waves hit the coastline of Northeastern Japan. Records show waves as high as 125 feet washed over the coastal cities, destroying everything as far inland as six miles, in some cases. To make matters worse, the Fukushima Daiichi nuclear power plant was inundated with seawater, creating a series of events that lead to core meltdowns in three of the six reactors and eventually leading to an accident rated at the maximum “7” on the International Nuclear Event Scale.

The United States government moved quickly to support the Japanese people, using all Department of Defense, Department of State, and non-governmental organization capabilities available. This humanitarian assistance and disaster relief effort was named Operation TOMODACHI. Tomodachi means “friendship” in Japanese and speaks to the deep ties between the United States and Japan. The Defense Logistics Agency Energy threw its full support behind these efforts.

During Operation TOMODACHI two of DLA Energy Pacific’s “automatic” programs went “manual.” That is to say, the regional command’s Japan office team had to revert to performing operations on-the-fly when programmed processes, sources and contracts went off line.

Deliveries of ground fuels and cryogenics stopped due to either infrastructure damage or government restrictions on inventory, transportation assets, and movement. Normally DLA

Energy's Japan office facilitates interaction and communication between customer ordering officers, vendors, and contracting officers in the U.S. During this operation, the Japan office personnel became the defacto-ordering officers, tracking daily inventories and shipments for both cryogenic products and ground fuel.

The Japan office team also provided cryogenic and ground fuel market information, linked vendors with the contracting officers in the U.S., and provided interpretation services to speed communication and smooth the contractual processes to get customer support in place quickly.

Research News -

Dispersed Water and Particulates in Jet Fuel: Size Analysis under Operational Conditions and Application to Coalescer Disarming

By Alisdair Q. Clark, Air BP Ltd., Middlesex, TW16 7LN, United Kingdom

By Alastair G. Smith and Steve Threadgold, Shell Global Solutions (U.K.), Chester, United Kingdom

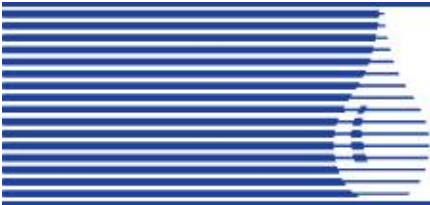
By Spencer E. Taylor, Chemical Sciences Division, University of Surrey, Guildford, United Kingdom

Jet fuel cleanliness, in terms of dispersed water and dirt, is of paramount importance to ensure aviation safety. In this study, a process image analyzer has been used to determine size distributions of dispersed water droplets and real and standard test dust particulates in jet fuel, both in the laboratory and under representative full-scale operational conditions. The technique is also applied to monitoring water droplet coalescence in a filter-water separator in the presence of a surfactant known to cause coalesce disarming, again under simulated operational conditions. The measured water and dirt count (number) distributions are exclusively log-normal, whereas corresponding volume size distributions show deviations from log-normal behavior as a result of contributions from the relatively small number of larger particles or aggregated droplet clusters, highlighting the importance of volume-based size analyses. Distinguishing between dispersed water droplets and solid particles has been demonstrated quantitatively, using a cosolvent to solubilize the contribution from free water droplets.

Global jet fuel specifications mandate a high level of product cleanliness on safety grounds. Therefore, efficient and effective removal of heterogeneous contaminants from jet fuel is of paramount and ongoing concern to the aviation industry. The measures taken during the various stages of handling jet fuel are designed to remove suspended water droplets and dirt particles and include filtration/coalescence, filtration/absorption, and microfiltration. However, notwithstanding the importance of minimizing fuel contaminant levels, relatively little is known about the size distribution of dispersed water and particulates in jet fuel under operational conditions. Only recently have attempts been made to quantify contamination in jet fuel in terms of particle or droplet number concentrations, using automated particle counters developed for hydraulic oil cleanliness monitoring. The pseudo-logarithmic number scale given by ISO 4406 has been adopted as the standard reporting format. Although size distribution information can be extracted from the ISO-based methods, detailed required for a more fundamental understanding is limited, and this is the principal focus of the present study.

Water present in hydrocarbon fuels is described as either dissolved or "free". The solubility of water in jet fuel is typically in the range of 50-100 ppm at 25°C, but is highly dependent on temperature and fuel composition. If the water concentration exceeds the solubility limit at any given temperature, it necessarily exists as a separate phase and is classed as free water. Free water

can be present at much higher concentrations than dissolved water. In turn, free water can either exist as fine droplet “hazes” generated by nucleation processes, for example, by cooling water-saturated fuel,³ or as coarser droplets resulting from dispersion of bulk water in the fuel as a result of turbulence generated, for example, in pumps or valves during handling. The filtration and coalescence processes mentioned above remove the free water, leaving dissolved water unaffected. In general, the relative concentrations of each form of water will increase in the order dissolved < nucleated < dispersed. This is the same order for the respective size scales of the different forms, ranging from molecular through nanometer to micrometer; however, specific information in the literature pertaining to the size of dispersed water droplets in jet fuel is limited, especially under operational conditions.



IASH 2011
12th International Conference on
Stability, Handling and Use of Liquid Fuels
Sarasota, Florida USA • 16-20 October 2011

3-1/2 MONTHS UNTIL IASH 2011 – REGISTER NOW

PRELIMINARY CONFERENCE PROGRAM ON IASH WEB SITE (WWW.IASH.NET)

IASH 2011 will begin with an opening reception on Sunday and continue with four days of technical sessions. A separate poster session will provide an opportunity for technical presentations on new and innovative approaches to the definition and solution of fuel stability and handling problems. A commercial exposition will run throughout the conference.

IASH 2011 will benefit anyone with a technical and scientific interest in the development, use, handling and storage of fuels, including fuel quality managers from refiners, distributors and fuel strategic reserves, fuel testing laboratories, research facilities, engine manufacturers, fuel additive suppliers and major fuel users.



IASH 2011 REGISTRATION FEES:

Sponsors/Exhibitors	Gratis
Speaker/Presenter Registration	\$1,000
Early Registration by 31 July 2011	\$1,200
Late Registration after 31 July 2011	\$1,500

Conference and Hotel Registration links are available at the IASH web site.

CONFERENCE SPONSORS

GOLD SPONSORS: *ExxonMobil Aviation / Fuel Quality Services, Inc.*

SILVER SPONSORS: *Air BP / Energy Institute / Parker Hannifin / Platinum Fuels / Pratt & Whitney / Shell Aviation / US DLA-Energy / US Naval Research Laboratory*

EXHIBITORS: *Bruker Optics / ECHA Microbiology / Falex Corporation / Intertek Commodities / KAM CONTROLS / PAC / PAMAS GmbH/Masley Gloves / Seta Analytics / University of Dayton Research Institute*

FOR INFORMATION ON EXHIBIT SPACE CONTACT:

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IASH 2011 CONFERENCE GENERAL INFORMATION

LOCATION

Hyatt Regency Sarasota, 1000 Boulevard of the Arts, Sarasota, Florida 34236
Hotel Phone: +1 941 953-1234; Fax: +1 941 952-1987; www.sarasota.hyatt.com
Rates: \$175 single/double + 11.5% tax.

Sarasota is on the Gulf of Mexico, an hour south of Tampa, Florida. Several barrier islands are located off of Sarasota, including Siesta Key with its sugary white quartz sand, Longboat Key, and Lido Key. As a pre- or post-conference activity, set up a deep sea fishing trip or play a round of golf on one of the many beautiful courses nearby the hotel. Visit the Mote Aquarium which houses over 100 species of marine life, or take a day trip to Myakka River State Park, 9 miles east of Sarasota. The Myakka River flows through 57 square miles of wetlands, prairies, hammocks and pinelands. A 7-mile scenic drive winds through the park with hiking trails that provide an opportunity for birding, bicycling and fishing. Take an airboat ride on Gator Gal on the Upper Myakka Lake to see the alligators up close.

As a full-service resort, the Hyatt Regency Sarasota has a 32-slip marina with floating docks. In order to help you take full advantage of the gorgeous Gulf Coast setting, the Hyatt offers C.B.'s Saltwater Outfitters their in-house destination for boat rentals, fishing charters and bait and tackle purchases. Kayaking and scuba diving are also available. For land lovers, bicycle rentals are available for guests. A complimentary Hyatt shuttle runs daily to and from Lido Public Beach on Lido Key, just minutes from the Hyatt. Visit the official Sarasota website for more information on local activities www.sarasotafl.org.

REGISTRATION

Registration will begin on Sunday, 16 October, at 14.00 Hours, in the Convention Center Foyer.

WELCOME RECEPTION

Sunday, 16 October (19.00-21.30) - A welcome reception will be held poolside at the Hyatt Regency.

REGISTRATION FEE INCLUDES

The registration fee includes all program materials, receptions, dinner on Wednesday, breakfast, AM/PM breaks and lunch each day. It also includes membership in the International Association for Stability, Handling and Use of Liquid Fuels for the years 2012-2013, and access to the proceedings at the online IASH Library. With the exception of the Wednesday evening gala dinner, spouses/guests of delegates are invited to attend all evening events at no charge. There is a \$100 fee for spouses/guests to attend the gala dinner.

TRAVEL BY PLANE & TRANSFER TO HOTEL–SRQ Services is the official transportation company for IASH. Reservations for airport transfers can be made on-line at www.srqservices.com or via email at reservations@srqservices.com.

Sarasota/Bradenton International Airport is located just 4 miles from the Hyatt Regency Sarasota, and is serviced by 5 major airlines and 2 commuter airlines on one concourse at the airport. The Hyatt shuttle provides transport to/from the Hyatt at the rate of \$8.00 one way or \$16 roundtrip. Taxis are available for about \$10-12 + tip. SRQ Services can provide private transportation.

Tampa International Airport is located 60 miles (1-1/4 hour-drive) from the Hyatt Regency Sarasota, and is serviced by 38 airlines and 6 commuter airlines on six concourses. Please contact SRQ Services to reserve transportation via private sedan. Note that rates are per car so it will cost less for two or more people to travel together. Most rental car agencies are also available at the airport. Taxis can cost up to \$170 per vehicle and are not recommended.

DRESS CODE

The dress code during the conference and receptions is business casual. Resort evening attire is recommended for the gala dinner. The weather is quite warm in Southern Florida in October so it is recommended you bring light weight clothing.

TEMPERATURES & TIME ZONE

Average temperatures in October range from a high of 85°F – 29.5°C to a low of 65°F – 18.3°C with an average of 4 inches of rain. In October, Florida is in the Eastern Daylight Time Zone.

Tipping is a usual practice in the United States for dinners, with 20% expected. Tipping taxi drivers is also appreciated at your discretion.

TOURS

Conference tours will be available during the week to Siesta Key, Selby Botanical Gardens, shopping at St. Armand's Circle, and the John & Mable Ringling Estate, home of a world class art museum and miniature circus. It is requested that tours be reserved one week prior to arrival with Shirley Bradicich at sbradicich@iash.net. The tours brochure will be sent to registrants and will be available at the IASH web site. Representatives will be on site during registration on Sunday from 14.00 to 17.00 to provide information about Sarasota dining, activities, and tours.

EVENING EVENTS

Sunday, 16 October (19.00-21.00)

The conference will begin on Sunday Evening with a reception poolside at the Hyatt. This welcome event will provide an excellent opportunity to meet old friends and make new ones in a beautiful Florida setting. The weather will be warm and the pool is heated.

Monday, 17 October (18.30-20.00)

A dedicated Poster/Exhibitor Reception will be held in the Exhibition Room and Foyer of the Hyatt Convention Center. Representatives will be available to discuss exhibits and technical posters with the delegates.

Tuesday, 18 October (19.30-21.30)

No evening functions planned.

Wednesday, 19 October (18.00-23.00)

Gala Dinner to be held on the marbled terrace of the Ca d'Zan, the home of John and Mable Ringling located on Sarasota Bay.

Thursday, 20 October (18.00-20.00)

Beach Barbecue at Siesta Key Beach, rated the #1 beach in the USA where the sand is soft, clean and pure white. There are picnic tables to eat at and cool sand to play on.

Conferences and Symposia of General Interest

IASH 2011	Sarasota, FL	16-20 Oct 2011	www.iash.net
2011 Biofuels Conference	Mississippi State, MS	5-7 Oct 2011	http://www.biofuelsconference.msstate.edu/
Canadian Unconventional Resources Conference	Calgary, Alberta, Canada	15 -17 Nov 2011	http://www.spe.org/events/curc/2011/
Biofuels International expo	Antwerp, Belgium	18-19 Nov 2011	http://www.biofuelsinternationalexpo.com/
20 th World Petroleum Congress	Doha, Qatar	4-8 Dec 2011	http://www.20wpc.com/