

***** RaDyO Planning Meeting: 13-15 October 2006 *****
Delta CentreVille
Montreal, Quebec Canada
St. Charles Room

Friday, 13 October

07:30pm Group dinner. Le Latini at 1130 Jeanne-Mance (Montreal), Ph: 514-861-3166. Meet at hotel lobby at 7:00pm or restaurant at 7:30pm. Directions are below. Business casual dress.

Saturday, 14 October

08:00 Breakfast

08:30 Steve Ackleson and Linwood Vincent updates. Linwood: DRI funded to measure and characterize wave fields – planning meetings will include some from RaDyO group.

08:45 George Kattawar, TAMU: K_{max} variation. Overview of online 36-page document. Questions regarding Raman scattering and hence wavelength dependence. Marlon question about propagation of directional wave spectra to underwater radiance field – goal of RaDyO program. Ron statement about not ignoring capillary waves. 8mm waves most affect radiance field. Bertran: capillary waves highly non-linear and important- will skew. Questions about the asymptotic peak shift. Why is it not present at increasing optical depths?

09:00 Dick Yue, MIT; Lian Shen, JHU, et al.: Preliminary wave and current model results. Linear vs. non-linear waves, narrowband vs. broadband, free surface vortical flow, free surface turbulent flow in the wake of floating body

09:15 Questions and discussion. How can we use these results to design the Scripps Pier Test and field experiments?

DURIP question. Should hear by December. Ken V. last year did not receive his until July. Only 2 groups submitted DURIPs, need \$\$\$ by pier test. Howard by March.

Howard Schultz: Slope determination using polarimetric imaging. Can we use polarimetric imaging to map the surface wave fields? Howard Schultz's Umass webpage, add WaveField/

10:00 Ken Melville, Scripps: Scripps Pier Information and Orientation

5.5-7m water depth, deck is 9 m off water

HF radar around pier – RF noise exists around pier

Power conditioning on computers – pumps are turned on and off to pump seawater in vicinity

SDCOOS – San Diego Coastal Ocean Observing System with pier data available on website

CDIP pier data available – 15 years of data

Vehicle access along pier on southern side

One permanent structure with pumphouse, tide gauge

3-ton crane: small boat or heavy equipment launching

**Can we use this as a tool? Other people will need to use for boat launching, so cannot “hog” the crane

New labs may be available by pier test time

Boom swings over pier for servicing – cable tube available, open bottom-looking available, currently sonic anemometer deployed...

**Need to test weight limit – 500+ lbs?

Suspension below boom would require modification of railing – current clearance only about one foot

New deployable boom on NW corner

Trucks and trailers can be parked, must be < 10 feet wide

**Need to discuss orientation of pier and location of measurements with respect to light shadowing, storm/wave shadowing, etc.

Portable office space available just nearshore of pier. 8x8x24 space available. No permanent space available. Power available at end of pier and in temporary office space

**No winches currently set up – must use boom or crane. Group must discuss winches.

Machine shopping difficult – must pay for it at Scripps

**Ken V. drawdown system? Find out if there is a permanent anchor point

**Need to discuss duration and time of pier experiment

**Hydrophone deployment access? (Scott P.) Strap to go around piling.

**Are there small boats available or do we bring our own? (Scott P.) Check on this.

**Conflicts with other experiments? Scripps is aware since April '06. Shouldn't be any conflicts.

**What kind of small boats are available? 15' to 22' Boston Whalers to Avons, owned by individual groups, must negotiate with groups. May be easier to rent one for experiment. 26' boat aluminum boat with cabin (Eric T.)? Would have to schedule it and talk about renting it. It stays in Mission Bay (10-12mi away) – would have to come up and return daily. SDSU has 27' boat for borrowing (Seahorse).

No fee for pier usage, but would have to pay for time for maintenance...

**Is there a floating dock next to pier? No.

**Anyone certified for university diving? Might need divers. Could send out a message at SIO for a case of beer.

**Number of personnel? Housing an issue. Monthly house rentals. Vrbo.com

**Between Thanksgiving and Christmas or January? October? Not a wide range of conditions in October. Steve recommends waiting until January '08 because of DURIP and other financial issues.

**1-3 day storms.

**Pier effects – rip current at north end of pier. Suggest having a camera looking out to look at shadowing, vortices, etc. Need to discuss far field observations of oceanic conditions.

10:30 Questions.

10:45 Coffee Break

Breakout Groups

11:00 Each group will need to discuss Scripps Pier Test goals, instrumentation integration, space requirements (including lab/bench space), number of personnel, etc.

Banner et al.: Surface roughness investigations – boom needs, no preference.

Triangular array, 2.5 m along one side, 8 m off edge of pier (end of boom)

Instantaneous picture of sea surface. Who wants to work below?

Ken V. right underneath Banner et al., needs to synchronize timing signal (ms accuracy). Ken's instrument takes ms to obtain a signal. Test interference of Ken's instrument with Banner et al.

Dariusz – high frequency changes in radiance, would like to be in conjunction with wave measurements. 5 minute data collection time. Time series throughout the day. Share with Ken's drawdown system? No. Suspension down from boom.

Svein would also like to be near Banner et al. Floating frame – test to see if it interferes. 1m x 1m with floats.

Would like Svein's bubble instrument with Mike T. and Ron's MASCOT. Marlon would like to be co-located with Svein as well. (Bubble group: Svein, Mike T., Ron, Marlon)

Scott P. AUV – will need crane for AUV deployment and retrieval and small boat deployment. Might bring in a larger small boat (zodiac vs. 25' boat). AUV is 1200lbs, 3 m long. Can run up to 8 hours. Depends on weather. Concerns with crane time. Deep water in canyon about 1 km away, Marlon free fall instrument deploy with Scott's small boat.

Crane time – Svein needs to deploy and recover with crane. Profilers will need crane (Mike T., OPL). Modelers would like to “float around”.

Do modelers need atmospheric conditions (aerosols)? No.

Modelers need vs. measurement capabilities

Multiple scale issue.

Longwave boundaries needed – Linwood’s program

Smaller waves resolved by Banner et al. measurements down to 1mm.

Very small scale resolved by statistics

George: Time averaged measurements matching with time averaged model? Then get down to details.

Pier test objectives:

1. Are models going the right directions? Did we make the right measurements?
2. Correlation between radiance and surface wave field – simultaneous measurements of optics and physics.
Statistical intercomparisons = no need to be completely co-located.
3. Try to reproduce field – group FLIP instruments, group KM measurements – is this feasible? Test homogeneity

12:00 Lunch (on your own or provided is TBD).

13:30 Continue group discussions.

15:00 Coffee Break

15:30 Short presentations by each group with the aim of providing Ken M. with the information necessary to begin logistical planning for the Scripps Pier Test (e.g., number of booms, locations of booms, winches and weight requirements, lab space, computing and communication requirements, machine shop equipment, etc.).

Boom group: (Mike B.)

Timing synchronous important.

Transfer data collection technologies to FLIP.

Isolated which instrumentation needs synchronization

Melville and Lenain on South Boom, Banner et al. on North Boom

20 m long cables from instruments to computers

Flexible mount

Motion package to detect boom movement.

150 kg package weight – within limitation.

Lab space requirements- discuss packing computers (stacking)

METs station on end of pier – remotely sensed data for experiment

Rain???

Test goals (on slide)

Bubble group: (Mike T.)

MASCOT package with bubble resonator above, Marlon’s radiance camera, and the LISST, all mounted on top of an ROV to be deployed off KM and driven near FLIP. For pier test, deploy over side with crane in profiling mode or by walking into the surf. Or deploy on subsurface mooring under wave measurements with Ken V.s anchor. Need to assess co-location with physics. How close can KM and ROV get to FLIP? Horizontal variability should not be an issue. Try mounting bubble resonator around MASCOT’s sample volume. Issue is scattering stray light off stainless steel plates. 650 nm wavelength for source beam. Research an ROV (Marlon, Mike T., Scott).

AUV: (Scott P.)

No ADCP, installing radiance camera (Marlon’s), IOPs, turbulence, irradiance integrated with turbulence to measure irradiance fluctuations. 1 m below surface near pier, fly around for spatial variability of region

and get instantaneous radiance distribution and irradiance fluctuations. Crane for deployment and retrieval, small boat for guidance near pier. 3000 m max depth (100 m desired), horizontal speed 1-2 m/s. Only downwelling radiance and irradiance. Navigation by GPS programming. Can get near FLIP and KM on surface and then dive quickly. Use FLIP as target – how far away until we can't see it?

Scripps Pier Test January 2008. Logistical support available for a month. 2 weeks in water. 13-26 in water. Set up week of 6th, wind down week of 27th. Daily morning meetings for planning purposes at pier test – logistics and science discussions. Ken M. work on conference room for meetings. Check out FLIP during pier test.

Field years 2008-2009

Benign in 2008 and rougher sea states in 2009. West end of SB Channel, near NDBC #46054, September or October pending Ocean Optics 2008. Climatology needed.

Higher sea state in 2009. April/May 2009, Pt. Conception TBD. Check to see where FLIP is – can piggy back?

Next meeting

Last week of June 2007. Homer, AK; College Station, TX; CO; Santa Fe, NM; Lake Tahoe (hook up with EPOC). [In conjunction with Linwood's DRI. Plans will be made.]

16:00 Ken Melville, Scripps: Leads a discussion on the feasibility of everyone's requirements for the Scripps Pier Test Experiment. Rough date and duration of Scripps Pier Test to be outlined. Time provided, we can revisit the issue of location and rough dates for the field experiments in 2008-2009.

Data management

METs and generic wave information made at near realtime by Ken and Luc. Data made available to modelers as soon as possible. If data are used in models, co-authorship offered to data owners. Must agree on data formats. Keep data internal for a while before releasing to public. Data housed with owner, a central link available. Each field experiment followed by data workshop to investigate trend level, quality, determine which "chunks" of data to look at rather than the whole set. Metadata file discussion to follow.

18:00 Recess for the day.

Sunday, 15 October

Individual PI small group meetings and other side discussions.