



Banff International Research Station

for Mathematical Innovation and Discovery

Coordinated Mathematical Modeling of Internal Waves

April 4 – April 9, 2010

MEALS

*Breakfast (Buffet): Sally Borden Building, Monday – Friday

*Lunch (Buffet): Sally Borden Building, Monday – Friday

*Dinner (Buffet): Sally Borden Building, Sunday – Thursday

Coffee Breaks: 2nd floor lounge, Corbett Hall

*Please remember to scan your meal card at the host/hostess station in the dining room for each meal.

MEETING ROOMS

All lectures will be held in Max Bell 159 (Max Bell Building accessible by walkway on 2nd floor of Corbett Hall). LCD projector, overhead projectors and blackboards are available for presentations. Note that the meeting space designated for BIRS is the lower level of Max Bell, Rooms 155-159. Please respect that all other space has been contracted to other Banff Centre guests, including any Food and Beverages in those areas.

SCHEDULE

Sunday

16:00 Check-in begins (Front Desk – Professional Development Centre - open 24 hours)

17:30-19:30 Buffet Dinner

20:00 Informal gathering in 2nd floor lounge, Corbett Hall

Beverages and small assortment of snacks are available on a cash honor system.

Monday

7:00-8:30 Breakfast

8:30-8:45 Introduction and Welcome by BIRS Station Manager, Max Bell 159

8:45-9:00 Opening remarks by Organizers

9:00-10:00 **Jeremy Goodman**: *Astrophysical Internal Waves I*

10:00-10:30 Coffee Break

10:30-12:00 i) **Chantal Staquet**: *Characterization of oscillating motions in the stable atmosphere of a deep valley*

ii) **Jeffrey Koseff**: *Internal wave breaking on submerged topographic features*

iii) **Boris Dintrans**: *Direct numerical simulation of internal wave attractors*

iv) **Lou StLaurent**: *Energetic and turbulence properties of large-amplitude internal waves in the South China Sea*

v) **Manikandan Mathur**: *Internal wave interferometry*

vi) **Sutanu Sarkar**: *Turbulence during resonant generation of internal tides*

12:00-13:00 Lunch

13:00-14:00 Guided Tour of The Banff Centre; meet in the 2nd floor lounge, Corbett Hall

14:00-15:00 i) **Pascale Garaud**: *Excitation of gravity waves by double-diffusive convection*

ii) **Theo Gerkema**: *Generation of nonlinear internal waves in the pycnocline by an impinging internal tidal beam*

iii) **Ulrich Achatz**: *Gravity waves, asymptotics and the pseudo-incompressible equations*

iv) **Karl Helfrich**: *Effects of rotation on internal solitary waves*

15:00-15:30 Coffee Break

15:30-16:30 i) **Ronald Smith**: *Mountain wave breaking*

ii) **Pascale Bouruet-Aubertot**: *Near-inertial waves and internal tides in the Indian Ocean during Cirene experiment*

- iii) Jody Klymak: *Parameterizing breaking wave turbulence at supercritical topography*
- iv) Roger Grimshaw: *Propagation of internal solitary waves in the coastal ocean over topography: deformation and disintegration*

16:30-17:30 Discussions

17:30-19:30 Dinner

Tuesday

7:00-9:00 Breakfast

9:00-10:00 **Jennifer MacKinnon**: *Oceanic Internal Waves I*

10:00-10:30 Group Photo and Coffee Break

- i) Paul Linden: *The role of internal waves in the dynamics of intrusions*
- ii) Tamara Rogers: *On the interaction of internal gravity waves and magnetic fields*
- iii) Mathieu Mercier: *Dead water phenomenon*
- iv) Bruce Sutherland: *The lifecycle of axisymmetric internal solitary waves*

11:30-13:30 Lunch

13:30-17:30 Discussions

17:30-19:30 Dinner

Wednesday

7:00-9:00 Breakfast

9:00-10:00 **David Fritts**: *Atmospheric Internal Waves*

10:00-10:30 Coffee Break

- i) Oliver Buhler: *Focusing and rapid decay of large-scale internal tides due to interactions with small-scale topography*
- ii) Yanqin Wu: *Inertial waves in Jovian planets: some new progress*
- iii) Triantaphyllos Akylas: *Local generation of solitary waves by reflecting beams in the ocean thermocline*
- iv) James Rottman: *A forecast model for atmospheric internal waves produced by topography*
- v) Oliver Fringer: *Understanding internal wave generation in the South China Sea using three-dimensional numerical simulations*
- vi) Shaun Johnston: *Model data comparison of internal tidal beams and mixing near Monterey Bay*

12:00-14:00 Lunch

- i) Joel Sommeria: *Generation of harmonics and sub-harmonics from an internal tide in a uniformly stratified fluid*
- ii) Madiha Ahmed: *Absolute instability of gravity waves*
- iii) Matthew Alford: *Full water-column observations of internal waves near Mendocino Escarpment*
- iv) Maarten Buijsman: *Variability of internal waves in the Southern California Bight*

15:00-15:30 Coffee Break

- i) Sonya Legg: *Nonlinear internal tides: comparison between rough and isolated topography*
- ii) Michel Rieutord: *Forced inertial modes in a rotating spherical shell*
- iii) Nicolas Grisouard: *Local generation of internal solitary waves in a pycnocline*
- iv) Thomas Peacock: *Internal tide generation and scattering using Green functions.*

16:30-17:30 Discussions

18:00-21:00 Informal gathering at the *Bison Lounge* in Banff town for dinner and drinks, for those who want to participate. Dinner is still provided as usual at BIRS, for those who want it.

Thursday

7:00-9:00 Breakfast

9:00-10:00 **Gordon Ogilvie**: *Astrophysical Internal Waves II*

10:00-10:30 Coffee Break

- 10:30-11:30 i) Harry Swinney: *Turning depths for semidiurnal internal tides in the deep ocean*
ii) Gary Klaassen: *On the viability of Lagrangian theories of internal wave spectra*
iii) Thierry Dauxois: *Scattering and diffraction using a new internal wave generator*
iv) Neil Balmforth: *Parametric subharmonic instability of the internal tide*

11:30-13:30 Lunch

13:30-17:30 Discussions

17:30-19:30 Dinner

Friday

7:00-9:00 Breakfast

9:00-10:00 Greg Ivey: *Oceanic Internal Waves II*

10:00-10:30 Coffee Break

- 10:30-11:30 i) Phil Marcus: *Selection rules for the nonlinear interaction of internal gravity waves*
ii) Magda Carr: *The stability of large-amplitude internal solitary waves*
iii) John Papaloizou: *Excitation of inertial waves during tidal encounters*
iv) Joe Fernando: *Internal waves and mixing in complex topography*

11:30-12:00 Concluding remarks by organizers

12:00-13:30 Check-out and Lunch

Checkout by 12 noon.

** 5-day workshop participants are welcome to use BIRS facilities (2nd Floor Lounge, Max Bell Meeting Rooms, Reading Room) until 3 pm on Friday, although participants are still required to checkout of the guest rooms by 12 noon. **