Geophysical Research Abstracts
Vol. 14, EGU2012-10211, 2012
EGU General Assembly 2012

Absence of internal tidal beams due to non-uniform stratification

T. Gerkema and H. van Haren
NIOZ Royal Netherlands Institute for Sea Research, Physical Oceanography, Den Burg, Texel, Netherlands (gerk@nioz.nl)

A linear internal-tide generation model is applied to the
Faeroe-Shetland Channel, using observed profiles of
stratification. Several degrees of simplification are considered:
1) uniform stratification, i.e. constant buoyancy frequency N;
2) vertically varying N(z);
3) the full N(x,z) and associated geostrophic background flows.
It is shown that clearly identifiable internal tidal beams and internal-wave
attractors occur in the first case, but not in the other cases where
the pattern is patchy due to internal reflections from the strong
inhomogeneities in the medium. Given the general occurrence of pycnoclines
and geostrophic background flows in the ocean, it is argued that this
internal scattering can be expected to be a widespread phenomenon.