

Seismic Oceanography

A New Tool to Characterize Physical Oceanographic Structures and Processes

Grant George Buffett

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Universitat de Barcelona*

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A New Tool to Characterize Physical Oceanographic Structures and Processes

Memòria presentada per Grant George Buffett per optar al Títol de Doctor en Geologia

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For Marc, that you may always reason.

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List of abbreviations

ADCP – Acoustic Doppler Current Profiler

ADER-DG – Arbitrary high order **DER**ivatives – **D**iscontinuous **G**alerkin

AMUSE – A Mediterranean Undercurrent Seeding Experiment

AVO – Amplitude Versus Offset

AW – Atlantic Water

CANIGO – Canary Islands Azores Gibraltar Observations

CDP – Common Depth Point

CMP – Common Midpoint

CTD – Conductivity Temperature Depth

FK – Frequency Wavenumber

GEOMAR – Research Center for **MAR**ine **GEO**sciences located in Kiel, Germany

GI – Generator-Injector

GO – Geophysical Oceanography

IAM – Iberian Atlantic Margin

LADCP – Lowered Acoustic Doppler Current Profiler

LMO – Linear MoveOut

LW – Levantine Water

MAW – Modified Atlantic Water

MCS – Multi-Channel Seismic

MEDDY – Mediterranean **EDDY**

MOW – Mediterranean Outflow Water

MU – Mediterranean Undercurrent

MW – **M**editerranean **W**ater

NACW – **N**orth **A**tlantic **C**entral **W**ater

NADW – **N**orth **A**tlantic **D**eep **W**ater

NMO – **N**ormal **M**ove**O**ut

OBS – **O**cean **B**ottom **S**eismometer

PSU – **P**ractical **S**alinity **U**nit

R – **R**eflection **C**oefficient

RAFOS – The acronym **SOFAR** spelled backward (type of acoustically tracked floats)

RMS – **R**oot **M**ean **S**quared

SOFAR – **S**ound **F**ixing **A**nd **R**anging (type of acoustically tracked floats)

SOC – **S**elf-**O**rganized **C**riticality

SOW – **S**eismic **O**ceanography **W**orkshop

TU – **T**urner **A**ngle

WMDW – **W**estern **M**editerranean **D**eep **W**ater

XBT – **e**Xpendable **B**athy**T**hermograph

XCTD – **e**Xpendable **C**onductivity **T**emperature **D**epth