

# Curriculum Vitae

## Personal Information

a. Name: Carl Leonetto AMOS

b. Date of birth:

## Present Appointment

a. Present post and grade: Professor (Emeritus)

b. Date of appointment to present post: 1 February, 2018

c. Department/Group: School of Ocean and Earth Science

## Previous Appointments

Dates	Appointment
1974-1975	Royal Society of London, John Murray Travelling Scholar Geological Survey of Canada, Bedford Institute of Oceanography (BIO) Post-Doctoral Fellow(BIO)
1975-1977	Research Scientist (RES-1) (BIO)
1977-1981	Research Scientist (RES-2) (BIO)
1982-1990	Geological Survey of Canada, Institute of Ocean Sciences
1990-1992	Research Scientist (RES-2)
1992-1998	Geological Survey of Canada, Bedford Institute of Oceanography Research Scientist (RES-3)
1998-1999	Geological Survey of Canada, Bedford Institute of Oceanography Research Scientist (RES-4)
1999-2003	University of Southampton, School of Ocean and Earth Science Senior Lecturer (Southampton)
2003 - 2017	Professor ((Southampton)
2017 - present	Professor Emeritus (Southampton)
2005-2015	Co-Director Coastal Centre for Engineering and Management
2008-2017	Director Tuscan Consultancy Ltd.

## Qualifications

Date	Title of Award	Subject	Class	Awarding Body
1971	BSc	Oceanography/ Geology	2i	University of Wales, Swansea
1974	PhD	Sedimentology		Royal School of Mines, Imperial College, London

## Honours and Distinctions

Date	Honour/Distinction
1984	APICS (Canada) Distinguished Lecturer
1985-present	Honorary Research Associate, Acadia Centre for Estuarine Research, Acadia University, Canada
	CIDA (Canada) consultant in Oceanography - Argentina
1993	UN Consultant on coastal studies - China
1993	Honorary Research Associate, Gatty Marine Labs, St. Andrews University, Scotland.
1993- 1994	Honorary Professor, Dipartimento di Scienze della Terra, Parma University, Italy.
1994-present	Distinguished Visiting Fellow and Honorary Professor, Department of Earth Sciences, Cardiff University, Wales.
1994-1999	CCOP consultant in Coastal issues - Philippines
1995	Received a Sector Award for outstanding research (Canada Government)
1997	Invited lecturer at International Maritime Academy, Trieste
1999-2005	Research Associate, University of Rome, Italy
2001	CIESM (Monaco) consultant on coastal erosion, Morocco
2002	Member of SCOR committee 122
2003-present	Research Associate – W. Vancouver Marine Laboratories, Canada
2007- present	Honorary Professor – Institute of Hydrography, Genoa, Italy
2016- present	Kuwait Institute of Scientific Research Award

## Postgraduate Supervision (Higher Research Degrees) in coastal sediment dynamics

### a. Number of Students

Degree	Current	Completed	Total to date
PhD	2	24	26
MSc	0	81	81

## Research and Scholarship

### Summary of current research and scholarship activities

My research has focused on three linked areas: the establishment of laboratory facilities at NOC to study the fundamentals of coastal stability; the development of field technologies for coastal surveying and process monitoring; and numerical simulations of sediment movement under waves and currents in the coastal zone. These goals were strongly link to the Centre for Coastal Processes, Engineering and Management (CCPEM) which I spearheaded on behalf of NOC. The results of this work is underpinned by over 233 scientific publications in front-line journals and official reports (see [www.researchgate.net/profile/Carl\\_Amos](http://www.researchgate.net/profile/Carl_Amos)). The laboratory facilities are operational and has resulted in participation within the EU Framework-5 Network BIOFLOW (with 16 other institutions across Europe). It has also led to funding from Consorzio Venezia Nuova (the Engineering managers of the MOSE Project), CNR Grandi Masse, Venice, and CORILA in a series of contracts since 2004.

This work centred on the evaluation of the impact of the MOSE storm gates on sedimentation patterns in Venice lagoon.

The link of laboratory measurements to field applications was studied within an EU project (EURODELTA) and has been incorporated into my numerical model SEDTRANS04 (published in Computers & Geoscience). This work is being undertaken in parallel with funding from CNR-Grandi Masse (Venice). SEDTRANS04 has been linked to a 2-D, finite element, hydrodynamic model (SHYFEM) of Venice Lagoon in association with CNR-Grandi Masse, CORILA, and University of Ca' Foscari, Venice. In order to place SEDTRANS04 into a broader context, we are compiling data on the northern Mediterranean as part of the EU-funded EUROSTRATAFORM project. We plan to simulate sedimentation patterns in the N. Adriatic in association with the prestigious ONR-funded (USA) STRATAFORM project in collaboration with the University of Colorado, and also in the Gulf of Lyons with a consortium of about 10 international Institutions. Our ultimate goal is to develop an interactive sedimentation model that yields accurate predictions of sediment movement under waves and currents in the coastal zone.

### **Summary of significant personal achievements in research, consultancy, and scholarship**

I have achieved international recognition for my scientific accomplishments in the fields of sediment dynamics, coastal stability, shoreline evolution, and marine technological innovation. I have achieved a balance between pure and applied research which has been supported in the past by industry. For example, my work on the role of the ballistic momentum flux of saltating material (an aeolian process) to seabed stability (combining aerodynamic, hydrodynamic, and geotechnical principles) was funded by NERC and EPSRC and formed a cornerstone of my research which has resulted in 5 PhD's and a series of scientific publications. The outcome is we know that terrestrial and marine landscapes are strongly influenced by these mechanisms at a global scale. This is spinning off to the interpretation of gullies, habitat erosion/stability and cliff stability by undercutting.

My work at NOC has also focussed on laboratory instrumentation: Mini Flume and Lab Carousel which have been used exhaustively in international, national and student research projects. Similar devices have been installed (through collaboration) in University of Odense (Denmark), Cardiff University (UK), Hohai University (China), and Acadia University (Canada). These developments have led to international cooperative work with National Research Council of Italy (Venice and Messina), University of Rome and University of Parma. Outstanding examples of international cooperation are EUROSTRATAFORM (a US/European project involving 50 Institutions, designed to understand and predict coastal landscape evolution), and BIOFLOW (an EU Network programme of 17 Institutions on biological/physical interactions at the seabed). Four special journal issues have evolved from BIOFLOW (one I will co-edit), and 4 conferences (one I helped co-ordinated).

### **Academic and Professional Activities**

- 2001 – 2010 Editorial Board, Estuarine, Coastal and Shelf Science, Holland
- 2001 – 2012 Editorial Board, Journal of Coastal Research, USA
- 2001-2006 Annual presentation of short course to IMO/IMA, Trieste
- 2002 – CIESM member panel on coastal erosion (Monaco)
- 2003 – Reviewer of MURST grant applications (Italy)
- 2003 – External examiner on 3 PhD theses in France (La Rochelle, Aix, and Perpignan)
- 2003 – Steering committee to M.Sc. on Coastal Management (ENEA, Italy)
- 2004 – Scientific advisor to Dept. Fisheries and Oceans (Canada)
- 2004 – present Panel member of SCOR group 122 (International)
- 2008 – External examiner on PhD (Bilbao, Spain)
- 2008 – present - founder and director of Tuscan Consultancy Ltd.
- 2009 – External examiner on PhD (Delft, Holland)

2010 – Invited session Chair Venice in Peril Conference, Venice May, 2010  
2011 – Keynote speaker in IASWS Conference, UK  
2012 – Invited presentation at Coral reef conference, Abu Dhabi  
2015 – Invited keynote speaker at Institute of Theoretical Physics, Trieste.  
2016 - Keynote speaker at Discover Kuwait, Kuwait City.  
2018 – Invited speaker at Coastal workshop (SKLEC, E. China Normal University, China)  
2018 – Invited session chair and Speaker at Saltmarsh Workshop (Hohai University)

I have taught coastal processes (20 hours/year) at the International Maritime Academy (Trieste) and Institute of Hydrography (Genoa) to military hydrographers (about 20/year) from the Mediterranean region. I was instrumental in developing the Short Course in Applied Coastal Sediment Dynamics which has taken place annually throughout Italy between 1995 - 2000. This Course has evolved into a Specialization Course in Coastal Science offered by University of Parma and sponsored by the National Research Council of Italy (CNR) and the Atomic Energy Commission of Italy (ENEA). I am the only non-Italian teaching on this course and on the Academic Board. I have a two-volume, 120-hour intensive course on Sediment Dynamics that I have presented world-wide including at Gran Combin School of Fluid Dynamics. I am a scientific consultant to National Research Council of Italy on coastal research, to Magistrato alle Aque (Venice) and to Istituto Talassografia, Messina on sedimentation.

## **RECOGNITION**

My research and teaching activities are world-wide in scope. This is evidenced by strong affiliations with academic institutions around the world (International Maritime Academy, Trieste; Acadia University, Canada; St Andrews, Scotland; Parma University, Italy; and University of Rome, Italy), by requests for participation in joint projects (BIOFLOW, EUROSTRATAFORM, EURODELTA, EU-PROTECT) and by the high attendance and successes of his short courses (Argentina - 1993, China - 1993, Parma, Italy - 1995, Philippines - 1995, La Spezia, Italy - 1996, Bologna, Italy - 1997, Sapri, Italy - 1998, Pescara, Italy – 1999; Santa Teresa, 2001; Itajai, Brazil, 2001, Gran Combin, 2002). I have been a member of SCOR committee 122 (Coastal erosion on muddy coasts) and on the editorial Boards of Estuarine, Coastal and Shelf Science, and Journal of Coastal Research. I am a regular reviewer for premiere publications Journal of Geophysical Research, Sedimentology, and Continental Shelf Research and provide regular reviews for NSERC, NERC, MURST, and NSF proposals. Invited to coordinate Chapman Conference on Tidal Flats (Canada), session chair at IGC (Florence), and coordinator of BIOFLOW conference (Venice). Invited to give lecture series at Istituto di Talassografia, Messina, and special lectures at EcoGeoMar (Romania), GKSS (Germany), POL (UK). Invited as external examiner on Marine Sciences at Plymouth University.

## **CONSULTANCY**

My role in consultancy is within the subject of coastal stability, sediment transport, and coastal habitat sustainability. I have provided advice since 1977 to the Canadian Government on sedimentation issues in the Bay of Fundy (related to Lobster spawning grounds), on issues of benthic stability and exchanges related to Oyster farming in Fanny Bay, BC, and on the impact of causeways in estuaries. Since 1999, I have successfully undertaken contractual work on issues of habitat stability and sedimentation in Venice lagoon (THETIS SpA, CORILA, Consorzio Venezia Nuova). More recently I have worked for the Atomic Energy Commission on the stability of low grade nuclear disposal sites in the UK. I have also provided input to the Lymington River Association on the impact of Wightlink Ferries on the stability of salt marshes in Lymington estuary. I also provide ongoing consultancy advice to HRWallingford Ltd., Scott Wilson Ltd., Partrac Ltd., and ABPmer Ltd.

## **LEADERSHIP**

My leadership skills are evident in the impact of my studies of sediment dynamics research around the world and on development of Coastal research at NOC. I have significantly altered the direction of coastal studies in Italy (about 500 have attended my courses to date) and administrators of the coastal zone to consider soft engineering over the previously used hard engineering approach. I have influenced the direction of research in New Zealand where NIWA (the premiere marine Institute) have joined me in deployments and processing of data from my benthic landers and benthic flumes. I built the sediment Dynamics Group at Bedford Institute, Canada before coming to Southampton University. I have been chief scientist on all of my last 16 scientific cruises while at BIO (about 160 days). I have supervised 27 Ph.D.s or post-doctorates, 81 M.Sc. students (Engineering in the Coastal Environment).

**Signed**

**Date : 1 May, 2024**