



ELSEVIER

Sedimentary Geology 115 (1998) 1

Sedimentary Geology

Preface

As we prepare research strategies with which to enter the next millennium, we must be conscious that the global ocean, including its chemical and physical make-up, its complex biological ecosystem and little known seafloor geology, provides one of the greatest challenges yet to scientific endeavour. Those concerned with deep-sea sedimentation, in reflecting on our progress over the past half century or more, will recognise the strategic significance of slope studies in tackling some of the more puzzling questions.

All the main processes affecting the erosion, transport and deposition of sediments in deep water operate and interact on the slope. Bottom currents are responsible for the deposition of mounded and sheeted drifts, as well as for prolonged episodes of non-deposition and erosion that cause hiatuses in the sedimentary record. Turbidity currents and associated resedimentation processes are further key agents in slope denudation and construction, and in shaping many of the morphological elements that comprise the slope-apron environment. The ubiquitous background hemipelagic and pelagic processes continue to provide important data for paleoceanographic reconstructions. This much we know, but key focused studies on the slope are required to take us further towards:

(1) decoding the contourite sedimentary record for evidence of paleoclimatic and paleoceanographic changes;

(2) determining more precisely the facies that represent slope contourites and reworked turbidites so that we can better interpret ancient sedimentary series;

(3) fully understanding the effects of sea-level change on both bottom current patterns and turbidity current triggers;

(4) documenting outer-shelf and upper-slope processes that act to clean, sort and remobilise sediment for downslope transfer;

(5) characterising the complexity of processes that feature in hemipelagic sedimentation as well as the interaction between bottom current, turbidity current and other processes;

(6) distinguishing between the different types and origins of both organised and chaotic megabeds.

This collection of sixteen papers follows from a very successful symposium held at the 14th International Sedimentological Congress in Recife, Brazil, in August 1994, which was the third *International Workshop on Bottom Currents and Contourites*. There was an extended remit to include the interaction of bottom currents with other deep-water processes, and a subsequent addition of a few selected contributions for the purposes of this volume. The papers represent a particularly interesting spread from shelf-edge to deep-basin, include both modern and ancient systems, and cover the majority of depositional processes and their interactions. They clearly highlight that *back to the slope* is the way forward into the next century.

DORRIK A.V. STOW
JEAN-CLAUDE FAUGÈRES

(Editors)



(Abstracted/Indexed in: *Geoscience Contents, Geo Abstracts, Current Contents, PASCAL/CNRS, Bulletin Signalétique, and A.G.I.'s Bibliography and Index of Geology*)

| | |
|--|-----|
| Preface | 1 |
| Fossil contourites: a critical review D.A.V. Stow, J.-C. Faugères, A. Viana and E. Gonthier | 3 |
| Sediment drifts and contourites on the continental margin off northwest Britain M.S. Stoker, M.C. Akhurst, J.A. Howe and D.A.V. Stow | 33 |
| Bottom-current-controlled sand deposits — a review of modern shallow- to deep-water environments A.R. Viana, J.-C. Faugères and D.A.V. Stow | 53 |
| Seismic patterns of a muddy contourite fan (Vema Channel, South Brazilian Basin) and a sandy distal turbidite deep-sea fan (Cap Ferret system, Bay of Biscay): a comparison J.C. Faugères, P. Imbert, M.L. Mézerais and M. Crémer | 81 |
| The interplay between turbidity and contour current processes on the Columbia Channel fan drift, Southern Brazil Basin L. Massé, J.C. Faugères and V. Hrovatin | 111 |
| Hydrology, morphology and sedimentology of the Campos continental margin, offshore Brazil A.R. Viana, J.C. Faugères, R.O. Kowsmann, J.A.M. Lima, L.F.G. Caddah and J.G. Rizzo | 133 |
| Slope sedimentary facies associated with Pleistocene and Holocene sea-level changes, Campos Basin, southeast Brazilian Margin L.F.G. Caddah, R.O. Kowsmann and A.R. Viana | 159 |
| Turbidites associated with bentonites in the Upper Cretaceous of the Campos Basin, offshore Brazil L.F.G. Caddah, D.B. Alves and A.M.P. Mizusaki | 175 |
| A sediment record of cyclic bottom-current variability from the northwest Weddell Sea I.M. Gilbert, C.J. Pudsey and J.W. Murray | 185 |
| Turbidites and contourites of the Palaeogene Lefkara Formation, southern Cyprus G. Kähler and D.A.V. Stow | 215 |
| Deep-water massive sands: facies, processes and channel geometry in the Numidian Flysch, Sicily M. Johansson, N.E. Braakenburg, D.A.V. Stow and J.-C. Faugères | 233 |
| Turbidite facies, fluid-escape structures and mechanisms of emplacement of the Oligo-Miocene Aljibe Flysch, Gibraltar Arc, Betics, southern Spain S.G. Stromberg and B. Bluck | 267 |
| Sedimentological significance of mudstone microclast intervals in Upper Proterozoic turbidites, central Dobrogea, Romania G. Oaie | 289 |
| Mineralogical and geochemical criteria for distinguishing turbidite and hemipelagic pelites — the Maastrichtian of the northern Apennines, Italy G.P. Sighinolfi and F. Tateo | 301 |
| Heterogeneity and lithotype distribution in ancient deep-sea canyons: Point Lobos deep-sea canyon as a reservoir analogue B.T. Cronin and R.B. Kidd | 315 |
| Volcaniclastic sediments, process interaction and depositional setting of the Mio-Pliocene Miura Group, SE Japan D.A.V. Stow, A. Taira, Y. Ogawa, W. Soh, H. Taniguchi and K.T. Pickering | 351 |
| <i>Author Index Volume 115, 1998</i> | 383 |
| <i>Contents Volume 115, 1998</i> | 385 |

