

# Processes Controlling the Composition of Clastic Sediments

Edited by Mark J. Johnsson and Abhijit Basu



***SPECIAL PAPER***

**284**

G.S.A. ARCHIVES

*Processes Controlling the Composition  
of Clastic Sediments*

Edited by

Mark J. Johnsson\*  
U.S. Geological Survey  
345 Middlefield Road, MS 999  
Menlo Park, California 94025

and

Abhijit Basu  
Department of Geological Sciences  
Indiana University  
Bloomington, Indiana 47405



***SPECIAL PAPER***

**284**

---

\*Present address: Department of Geology, Bryn Mawr College, Bryn Mawr,  
Pennsylvania 19010-2899.

1993

337 118A 1.2 J

Copyright © 1993, The Geological Society of America, Inc. (GSA). All rights reserved. GSA grants permission to individual scientists to make unlimited photocopies of one or more items from this volume for noncommercial purposes advancing science or education, including classroom use. Permission is granted to individuals to make photocopies of any item in this volume for other noncommercial, nonprofit purposes provided that the appropriate fee (\$0.25 per page) is paid directly to the Copyright Clearance Center, 27 Congress Street, Salem, Massachusetts 01970, phone (508) 744-3350 (include title and ISBN when paying). Written permission is required from GSA for all other forms of capture or reproduction of any item in the volume including, but not limited to, all types of electronic or digital scanning or other digital or manual transformation of articles or any portion thereof, such as abstracts, into computer-readable and/or transmittable form for personal or corporate use, either noncommercial or commercial, for-profit or otherwise. Send permission requests to GSA Copyrights.

Copyright is not claimed on any material prepared wholly by government employees within the scope of their employment.

Published by The Geological Society of America, Inc.  
3300 Penrose Place, P.O. Box 9140, Boulder, Colorado 80301

Printed in U.S.A.

GSA Books Science Editor Richard A. Hoppin

**Library of Congress Cataloging-in-Publication Data**

Processes controlling the composition of clastic sediments / edited by  
Mark J. Johnsson and Abhijit Basu.

p. cm. — (Special paper ; 284)

Based on papers presented at the 1991 annual meeting of the  
Geological Society of America.

Includes bibliographical references and index. ISBN 0-8137-2284-5

1. Sedimentation and deposition—Congresses. 2. Weathering-  
-Congresses. 3. Sediments (Geology)xx—Composition—Congresses.

I. Johnsson, Mark J. II. Basu, Abhijit. III. Series: Special  
papers (Geological Society of America) ; 284.

QE571.P76 1993

551.3—dc20

93-28881

CIP

**Cover photo:** The Río Mendoza carries detritus from the rising high Andes of central Argentina and Chile to the Andean foreland basin near Mendoza, Argentina. The river is reworking alluvial deposits stored in alluvial fans as it struggles to maintain its grade during continued uplift of the mountains; note the truncated alluvial fan on the left side of the photograph. More detritus is temporarily stored in the meander belt of the river, awaiting remobilization by channel migration and cutbank growth. **Background photo:** Compositional sorting of sand by hydrodynamic processes; segregation of denser minerals (principally ilmenite and magnetite) from lighter minerals (principally quartz) in Año Nuevo Creek at Año Nuevo beach, central California. Photographs by Mark J. Johnsson.

10 9 8 7 6 5 4 3 2 1