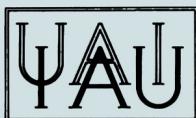


TRANSACTIONS OF THE  
INTERNATIONAL ASTRONOMICAL  
UNION  
VOL. XXIIA (REPORTS 1993)

**REPORTS ON  
ASTRONOMY**

KLUWER ACADEMIC PUBLISHERS  
DORDRECHT / BOSTON / LONDON



## **REPORTS ON ASTRONOMY**

*Transactions of the International Astronomical  
Union, Volume XXIIA*

*edited by*

**JACQUELINE BERGERON**  
*General Secretary of the Union*

*IAU Transactions* are published as a volume corresponding to each General Assembly. Volume A is produced prior to the Assembly and contains *Reports on Astronomy*, prepared by each Commission President. The intention is to summarize the astronomical results that have affected the work of the Commission since the production of the previous *Reports* up to a time which is about one year prior to the General Assembly. Volume B is produced after the Assembly and contains accounts of Commission Meetings which were held, together with other material. The reports included in the present volume range from outline summaries to lengthy compilations and references. Most of the reports are in English.

**KLUWER ACADEMIC PUBLISHERS**

DORDRECHT / BOSTON / LONDON

**TRANSACTIONS  
OF THE  
INTERNATIONAL  
ASTRONOMICAL UNION  
VOLUME XXIIA  
REPORTS**

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS  
INTERNATIONAL ASTRONOMICAL UNION  
UNION ASTRONOMIQUE INTERNATIONALE

TRANSACTIONS  
OF THE  
INTERNATIONAL ASTRONOMICAL UNION  
VOLUME XXIIA

**REPORTS**  
**ON**  
**ASTRONOMY**

*Edited by*  
**JACQUELINE BERGERON**  
*General Secretary of the Union*



KLUWER ACADEMIC PUBLISHERS  
DORDRECHT / BOSTON / LONDON



Library of Congress Cataloging-in-Publication Data

Reports on astronomy / edited by Jacqueline Bergeron.  
p. cm. -- (Transactions of the International Astronomical  
Union : v. 22A)  
ISBN 0-7923-2709-8  
1. Astronomy--Congresses. 2. International Astronomical Union-  
Congresses. I. Bergeron, J. (Jacqueline) II. Series.  
QB1.I6 vol. 22A  
520 s--dc20  
[520]

93-50750

ISBN 0-7923-2709-8

---

*Published on behalf of  
the International Astronomical Union  
by*

*Kluwer Academic Publishers, P.O. Box 17, 3300 AA Dordrecht, The Netherlands.*

*Kluwer Academic Publishers incorporates  
the publishing programmes of  
D. Reidel, Martinus Nijhoff, Dr W. Junk and MTP Press.*

*Sold and distributed in the U.S.A. and Canada  
by Kluwer Academic Publishers,  
101 Philip Drive, Norwell, MA 02061, U.S.A.*

*In all other countries, sold and distributed  
by Kluwer Academic Publishers Group,  
P.O. Box 322, 3300 AH Dordrecht, The Netherlands.*

*Printed on acid-free paper*

*All Rights Reserved  
© 1994 International Astronomical Union*

*No part of the material protected by this copyright notice may be reproduced or utilized  
in any form or by any means, electronic or mechanical including photocopying,  
recording or by any information storage and retrieval system, without written permission  
from the publisher.*

*Printed in the Netherlands*

## CONTENTS

Preface .....	v
---------------	---

### REPORTS OF COMMISSIONS

4 Ephemerides/ <i>Ephémérides</i> .....	1
5 Documentation & astronomical data .....	7
<i>Documentation &amp; données astronomiques</i>	
6 Astronomical telegrams/ <i>Télégrammes astronomiques</i> .....	13
7 Celestial mechanics/ <i>Mécanique céleste</i> .....	15
8 Positional astronomy/ <i>Astronomie de position</i> .....	29
9 Instruments & techniques/ <i>Instruments &amp; techniques</i> .....	39
10 Solar activity/ <i>Activité solaire</i> .....	53
12 Solar radiation & structure/ <i>Radiation &amp; structure solaires</i> .....	85
14 Atomic & molecular data/ <i>Données atomiques &amp; moléculaires</i> .....	105
15 Physical study of comets, minor planets & meteorites .....	135
<i>Etude physique des comètes, des petites planètes &amp; des météorites</i>	
16 Physical study of planets & satellites .....	157
<i>Etude physique des planètes &amp; satellites</i>	
19 Rotation of the Earth/ <i>Rotation de la Terre</i> .....	169
20 Positions & motions of minor planets, comets & satellites .....	185
<i>Positions &amp; mouvements des petites planètes, des comètes &amp; des satellites</i>	
21 Light of the night sky/ <i>Lumière du ciel nocturne</i> .....	205
22 Meteors & interplanetary dust/ <i>Météores &amp; poussière interplanétaire</i> .....	211
24 Photographic astrometry/ <i>Astrométrie photographique</i> .....	225
25 Stellar photometry & polarimetry .....	229
<i>Photométrie &amp; polarimétrie stellaires</i>	
26 Double & multiple stars/ <i>Etoiles doubles &amp; multiples</i> .....	239
27 Variable stars/ <i>Etoiles variables</i> .....	243
28 Galaxies .....	277
29 Stellar spectra/ <i>Spectres stellaires</i> .....	305
30 Radial velocities/ <i>Vitesses radiales</i> .....	319

31	Time/ <i>L'Heure</i> .....	325
33	Structure & dynamics of the galactic system .....	337
	<i>Structure &amp; dynamique du système galactique</i>	
34	Interstellar matter/ <i>Matière interstellaire</i> .....	367
35	Stellar constitution/ <i>Constitution des étoiles</i> .....	399
36	Theory of stellar atmospheres/ <i>Théorie des atmosphères stellaires</i> .....	409
37	Star clusters & associations/ <i>Amas stellaires &amp; associations</i> .....	425
38	Exchange of Astronomers/ <i>Echange des Astronomes</i> .....	445
40	Radio astronomy/ <i>Radioastronomie</i> .....	447
41	History of Astronomy/ <i>Histoire de l'Astronomie</i> .....	461
42	Close binary stars/ <i>Etoiles binaires serrées</i> .....	463
44	Astronomy from Space/ <i>L'Astronomie à partir de l'Espace</i> .....	489
45	Stellar classification/ <i>Classification stellaire</i> .....	525
46	Teaching of Astronomy/ <i>Enseignement de l'Astronomie</i> .....	535
47	Cosmology/ <i>Cosmologie</i> .....	539
48	High energy astrophysics/ <i>Astrophysique des hautes energies</i> .....	***
49	The interplanetary plasma & the Heliosphere .....	565
	<i>Plasma interplanétaire &amp; Héliosphère</i>	
50	Protection of existing & potential observatory sites .....	579
	<i>Protection des sites d'observatoires existants &amp; potentiels</i>	
51	Bioastronomy: Search for extraterrestrial Life .....	583
	<i>Bioastronomie: Recherche de la vie extraterrestre</i>	
	Working Group for Planetary System Nomenclature: WGPSN .....	595
	<i>Groupe de travail pour la nomenclature du système planétaire</i>	
	Working Group for the World Wide Development of Astronomy: WGWWDA .....	605
	<i>Groupe de travail pour le développement mondial de l'astronomie</i>	

\*\*\* No report provided