

XXIIInd General Assembly

The Hague
The Netherlands
1994

XXIIe Assemblée Générale

La Haye, Pays Bas

1994

Resolution No. B 1

on Supporting the Lunar Meteor Data Center

Commission 22 (Meteors and Interplanetary Dust)

sur le soutien au Lunar Meteor Data Center

La Commission 22 (Météores et Poussière interplanétaire)

The XXIIInd General Assembly of the International Astronomical Union

Recognising the extensive use that is being made of the archival material held by the Lund Meteor Data Center (more than fifty data sets distributed during the past three years), and

Noting that such use is increasing as the amount of data expands with time,

Resolves that the International Astronomical Union be requested to maintain the modest level of financial support (currently, CHF 3300 per triennium) which has been granted in the past in order that the valuable role of the Lund Meteor Data Center be preserved.

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

reconnaissant l'usage fréquent qui est fait des archives du "Lund Meteor Data Center" (plus de 50 ensembles de données distribués pendant les trois dernières années), et

notant que cet usage ne peut que s'accroître avec l'augmentation continue du nombre des données avec le temps,

adopte la résolution de demander à l'IAU de maintenir le modeste soutien financier (actuellement 3 300 CHF triennaux) qui a été accordé dans le passé, afin que le rôle considérable du Lund Meteor Data Center soit maintenu.

Resolution No. B 2

on Funding the Archival Organisation of the International Astronomical Union

Commission 41 (History of Astronomy)

Financement de l'Organisation des archives de l'Union Astronomique Internationale

La Commission 41 (Histoire de l'Astronomie)

The XXIIInd General Assembly of the International Astronomical Union

Noting that the International Astronomical Union allocated funds for preparation of the "History of the IAU" by Prof. Blaauw, not all of which has been spent,

Suggests to the Executive Committee that these remaining funds be used for the archival organization and cataloguing of the early IAU files in preparation for depositing them in a suitable archive.

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

notant que les fonds alloués par l'IAU pour la préparation de "l'Histoire de l'IAU" par le Professeur Blaauw n'ont pas été totalement utilisés,

suggère au Comité Exécutif que les fonds restants soient utilisés pour l'organisation de l'archivage et la préparation d'un inventaire des anciens documents de l'IAU en vue de les conserver dans un fonds d'archives approprié.

Resolution No. B 3

on the Measurement and Mitigation of Adverse Environmental Impacts on Astronomy

Commission 5 (Documentation and Astronomical Data)

sur la mesure et la réduction des nuisances sur l'environnement préjudiciales à l'astronomie

La Commission 5 (Documentation et Données Astronomiques)

The XXIIInd General Assembly of the International Astronomical Union

Recalling the wide range of resolutions from previous assemblies of the International Astronomical Union on mitigation of adverse environmental impacts on astronomy,

Noting the publication of survey of environmental threats to astronomy in the book "The Vanishing Universe",

Deploring the evidence which the book contains of continuing and worsening interference with astronomical observations,

Requests the National Adhering Organizations to encourage, support and finance national activity to monitor and ameliorate adverse environmental impacts on astronomy in their countries.

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Rappelant le grand nombre de résolutions des assemblées générales précédentes de l'UAI sur la nécessité de maîtriser les nuisances sur l'environnement préjudiciales à l'astronomie,

Notant la publication d'un relevé des menaces de ce genre préjudiciales à l'astronomie, comme le livre "The Vanishing Universe",

Déplorant le témoignage qu'apporte cet ouvrage, de la continuation et de l'aggravation des nuisances perturbant l'observation astronomique,

Demande aux Organisations Nationales Adhérentes d'encourager, de soutenir et de financer une activité nationale pour contrôler et réduire les perturbations sur l'environnement préjudiciales à l'astronomie dans leurs pays respectifs.

Resolution No. B 4

on the Prohibition of Satellite Systems having potentially adverse impacts on astronomy

Commission 40 (Radio Astronomy)

sur l'Interdiction de Systèmes Satellitaires entraînant des perturbations susceptibles d'être préjudiciales à l'Astronomie

La Commission 40 (Radioastronomie)

The XXIIInd General Assembly of the International Astronomical Union

Noting the establishment by ICSU of an inter-union Working Group on Adverse Environmental Impacts on astronomy to coordinate and support the work of IAU, COSPAR, and IUCAF in their respective areas of competence,

Viewing with concern recent experiments and future proposals for solar reflectors in space and for microwave beaming of solar power from space to ground,

Deploring any creation of artificial bright sources of light or radio power in the sky that can interfere with astronomical observations,

Requests the Executive Committee to work with ICSU, other International Unions and the Space Agencies to create policies with international force to prohibit such satellite systems where an adverse environmental impact on astronomy can be expected.

COSPAR *Committee on Space Research*
ICSU *International Council for Scientific Unions*
IUCAF *Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Sciences*

La XXI^e Assemblée Générale de l'Union Astronomique Internationale

Notant l'établissement par l'ICSU d'un groupe de travail inter-unions sur les répercussions sur l'environnement nuisibles à l'Astronomie destiné à coordonner et à soutenir les travaux de l'UAI, du COSPAR et de l'IUCAF dans leurs domaines de compétence respectifs,

Constatant avec inquiétude des expériences récentes, et des propositions pour l'avenir, de réflecteurs solaires dans l'espace pour renvoyer l'énergie solaire par voie micro-onde vers le sol,

Déplorant toute création de sources brillantes de lumière ou de puissance radio dans le ciel pouvant interférer avec l'observation astronomique,

Demande au Comité Exécutif de travailler avec l'ICSU, les autres Unions Internationales et les Agences Spatiales pour promouvoir des règles internationales afin d'interdire de tels systèmes satellitaires susceptibles d'induire des perturbations préjudiciales à l'environnement dans le domaine de l'astronomie.

Resolution No. B 5
on the Working Group on Reference Frames
The participants of Symposium 166
sur le Groupe de Travail Reference Frames
Les participants au Symposium 166

The XXInd General Assembly of the International Astronomical Union

Considering that the IAU Working Group on Reference Frames consisting of members of Commissions 4, 8, 19, 24 and 31, the International Rotation Service (IERS) and other pertinent experts has been formed to produce a list of candidate extragalactic radio sources for defining the new conventional reference frame and secondary sources that may later be added to the primary sources or replace some of the primary sources,

Noting that a list of sources which define the conventional reference frame together with list of candidate sources which may, at some future date, be added to or replace the defining sources has been made,

Recommends that this list of defining sources be adopted by the XXInd General Assembly (1994) as the first stage in the definition of the new reference frame, and

Requests that the Working Group on Reference Frames be continued and its membership be reviewed by Commissions 4, 8, 19, 24 and 31 and the IERS to

1. define the positions of the radio sources on the list,
2. determine the relationship of this frame to an optical frame defined by stars, and
3. recommend to the XXIIIrd General Assembly (1997) that a way be found to organize the work for the maintenance and evolution of this frame and its extension to other frames at other wavelengths.

Annexe to Resolution B5

List of extragalactic objects identified sources which define the new conventional celestial reference frame together with candidate sources which may, at some future date, be added or replace the defining sources:

d: defining sources
c: additional sources
o: optical objects

	Name			R.A.		Dec.		Alias
d	0003-066	0	6	13.89	-6	23	35.3	PKS 0003-066
d	0007+106	0	10	31.01	10	58	29.5	IIIZW2, PKS 0007+106
d	0007+171	0	10	33.99	17	24	18.8	4C+17.04
d	0008-264	0	11	1.25	-26	12	33.4	PKS 0008-264
d	0010+405	0	13	31.13	40	51	37.1	B3 0010+406
d	0013-005	0	16	11.09	0	-15	12.5	PKS 0013-005
d	0014+813	0	17	8.48	81	35	8.1	S5 0014+81
d	0016+731	0	19	45.79	73	27	30.0	S5 0016+73
d	0019+058	0	22	32.44	6	8	4.3	PKS 0019+058
d	0026+346	0	29	14.24	34	56	32.2	OB343, S4 0026+34
d	0039+230	0	42	4.55	23	20	1.1	PKS 0039+230
d	0047-579	0	49	59.47	-57	38	27.3	PKS 0047-579
d	0048-097	0	50	41.32	-9	29	5.2	PKS 0048-097
d	0056-572	0	58	46.58	-56	59	11.5	PKS 0056-572
d	0056-001	0	59	5.51	0	6	51.6	4C-00.06
d	0059+581	1	2	45.76	58	24	11.1	
d	0104-408	1	6	45.11	-40	34	20.0	
d	0106+013	1	8	38.77	1	35	0.3	4C+01.02
d	0109+224	1	12	5.82	22	44	38.8	
d	0111+021	1	13	43.14	2	22	17.3	
d	0112-017	1	15	17.10	-1	27	4.6	PKS 0112-014
d	0113-118	1	16	12.52	-11	36	15.4	PKS 0113-118
d	0119+115	1	21	41.59	11	49	50.4	PKS 0119+115
d	0119+041	1	21	56.86	4	22	24.7	IRAS F01177+
d	0123+257	1	26	42.79	25	59	1.3	
d	0131-522	1	33	5.76	-52	0	4.0	PKS 0131-522
d	0133+476	1	36	58.59	47	51	29.1	
d	0135-247	1	37	38.35	-24	30	53.9	
d	0134+329	1	37	41.30	33	9	35.1	3C48, 4C+39.25
d	0146+056	1	49	22.37	5	55	53.6	PKS 0146+056
d	0148+274	1	51	27.15	27	44	41.8	
d	0149+218	1	52	18.06	22	7	7.7	PKS 0149+218
d	0150-334	1	53	10.12	-33	10	25.9	PKS 0150-334
d	0153+744	1	57	34.96	74	42	43.2	
d	0159+723	2	3	33.38	72	32	53.7	
d	0201+113	2	3	46.66	11	34	45.4	PKS 0201+113
d	0202+149	2	4	50.41	15	14	11.0	4C+15.05
d	0202-172	2	4	57.67	-17	1	19.8	PKS 0202-172
d	0202+319	2	5	4.93	32	12	30.1	B2 0202+31
d	0208-512	2	10	46.20	-51	1	1.9	PKS 0208-512

	Name			R.A.		Dec.		Alias
d	0212+735	2	17	30.81	73	49	32.6	S5 0212+73
d	0215+015	2	17	48.95	1	44	49.7	
d	0219+428	2	22	39.61	43	2	7.8	
d	0220-349	2	22	56.40	-34	41	28.7	PKS 0220-349
d	0221+067	2	24	28.43	6	59	23.3	
d	0224+671	2	28	50.05	67	21	3.0	4C+67.05
d	0230-790	2	29	34.95	-78	47	45.6	PKS 0230-790
d	0229+131	2	31	45.89	13	22	54.7	4C+13.14
d	0234+285	2	37	52.41	28	48	9.0	4C+28.07
d	0235+164	2	38	38.93	16	36	59.3	PKS 0235+164
d	0237+040	2	39	51.26	4	16	21.4	PKS 0237+040
d	0238-084	2	41	4.80	-8	15	20.8	NGC1052, PKS 0238-084
d	0239+108	2	42	29.17	11	1	0.7	PKS 0239+108
d	0248+430	2	51	34.54	43	15	15.8	S4 0248+43
d	0252-549	2	53	29.18	-54	41	51.4	PKS 0252-549
d	0256+075	2	59	27.08	7	47	39.6	
d	0259+121	3	2	30.55	12	18	56.7	
d	0300+470	3	3	35.24	47	16	16.3	OE400, 4C+47.08
d	0302-623	3	3	50.63	-62	11	25.6	PKS 0302-623
d	0302+625	3	6	42.66	62	43	2.0	
d	0306+102	3	9	3.62	10	29	16.3	OE110
d	0308-611	3	9	56.10	-60	58	39.1	PKS 0308-611
d	0312-770	3	11	55.25	-76	51	50.9	PKS 0312-770
d	0309+411	3	13	1.96	41	20	1.2	
d	0319+121	3	21	53.10	12	21	13.9	PKS 0319+121
d	0326+279	3	29	57.67	27	56	15.5	0326+277
d	0332-403	3	34	13.65	-40	8	25.4	PKS 0332-403
d	0333+321	3	36	30.11	32	18	29.3	NRAO140, 4C+32.14
d	0336-019	3	39	30.94	-1	46	35.8	CTA26, PKS 0336-019
d	0338-214	3	40	35.61	-21	19	31.2	PKS 0338-214
d	0341+158	3	44	23.17	15	59	43.4	
d	0342+147	3	45	6.42	14	53	49.6	
d	0400+258	4	3	5.59	26	0	1.5	PKS 0400+258
d	0402-362	4	3	53.75	-36	5	1.9	PKS 0402-362
d	0405+305	4	8	20.38	30	32	30.5	
d	0406-127	4	9	5.77	-12	38	48.1	
d	0406+121	4	9	22.01	12	17	39.8	PKS 0406+121
d	0414-189	4	16	36.54	-18	51	8.3	PKS 0414-189
d	0420-014	4	23	15.80	-1	20	33.1	PKS 0420-014
d	0420+417	4	23	56.01	41	50	2.7	
d	0422-380	4	24	42.24	-37	56	20.8	
d	0422+004	4	24	46.84	0	36	6.3	OF038, PKS 0422+004
d	0423+051	4	26	36.60	5	18	19.9	PKS 0423+051
d	0425+048	4	27	47.57	4	57	8.3	
d	0426-380	4	28	40.42	-37	56	19.6	PKS 0426-380
d	0434-188	4	37	1.48	-18	44	48.6	PKS 0434-188
d	0437-454	4	39	0.85	-45	22	22.6	
d	0438-436	4	40	17.18	-43	33	8.6	PKS 0438-436
d	0440-003	4	42	38.66	0	-17	43.4	NRAO190, PKS 0440-003

	Name			R. A.		Dec.		Alias
d	0440+345	4	43	31.63	34	41	6.7	
d	0446+112	4	49	7.67	11	21	28.6	
d	0454-810	4	50	5.44	-81	1	2.2	PKS 0454-810
d	0451-282	4	53	14.65	-28	7	37.3	PKS 0451-282
d	0454-234	4	57	3.18	-23	24	52.0	
d	0457+024	4	59	52.05	2	29	31.2	PKS 0457+024
d	0458-020	5	1	12.81	-1	59	14.3	4C-02.19
d	0458+138	5	1	45.27	13	56	7.2	
d	0459+060	5	2	15.45	6	9	7.5	
d	0500+019	5	3	21.20	2	3	4.7	
d	0502+049	5	5	23.18	4	59	42.7	
d	0506-612	5	6	43.99	-61	9	41.0	PKS 0506-612
d	0454+844	5	8	42.36	84	32	4.5	S5 0454+84
d	0506+101	5	9	27.46	10	11	44.6	
d	0507+179	5	10	2.37	18	0	41.6	PKS 0507+179
d	0511-220	5	13	49.11	-21	59	16.1	PKS 0511-220
d	0516-621	5	16	44.93	-62	7	5.4	
d	0518+165	5	21	9.89	16	38	22.0	3C138, 4C+16.12
d	0522-611	5	22	34.43	-61	7	57.1	PKS 0522-611
d	0521-365	5	22	57.98	-36	27	30.9	PKS 0521-365
d	0530-727	5	29	30.04	-72	45	28.5	PKS 0530-727
d	0528-250	5	30	7.96	-25	3	29.9	PKS 0528-250
d	0528+134	5	30	56.42	13	31	55.1	PKS 0528+134
d	0537-441	5	38	50.36	-44	5	8.9	PKS 0537-441
d	0537-158	5	39	32.01	-15	50	30.3	PKS 0537-158
d	0536+145	5	39	42.37	14	33	45.6	
d	0537-286	5	39	54.28	-28	39	56.0	PKS 0537-286
d	0539-057	5	41	38.08	-5	41	49.4	PKS 0539-057
d	0538+498	5	42	36.14	49	51	7.2	3C147, 4C+49.14
d	0544+273	5	47	34.15	27	21	56.8	
d	0552+398	5	55	30.81	39	48	49.2	B2 0552+39A
d	0556+238	5	59	32.03	23	53	53.9	
d	0600+177	6	3	9.13	17	42	16.8	
d	0605-085	6	7	59.70	-8	34	50.0	PKS 0605-085
d	0607-157	6	9	40.95	-15	42	40.7	PKS 0607-157
d	0609+607	6	14	23.87	60	46	21.8	
d	0615+820	6	26	3.00	82	2	25.6	S5 0615+82
d	0629-418	6	31	12.00	-41	54	26.9	PKS 0629-418
d	0637-752	6	35	46.51	-75	16	16.8	PKS 0637-752
d	0637-337	6	39	20.90	-33	46	0.1	PKS 0637-337
d	0636+680	6	42	4.26	67	58	35.6	S4 0636+68
d	0624+214	6	45	24.10	21	21	51.2	3C166, 4C+21.21
d	0642+449	6	46	32.03	44	51	16.6	B3 0642+449
d	0646-306	6	48	14.10	-30	44	19.7	PKS 0646-306
d	0650+371	6	53	58.28	37	5	40.6	S4 0650+37
d	0657+172	7	0	1.53	17	9	21.7	

	Name			R.A.		Dec.		Alias
d	0707+476	7	10	46.10	47	32	11.1	B3 0707+476
d	0711+356	7	14	24.82	35	34	39.8	
d	0716+714	7	21	53.45	71	20	36.4	S5 0716+71
d	0722+145	7	25	16.81	14	25	13.7	4C+14.23
d	0723-008	7	25	50.64	0	-54	56.5	PKS 0723-008
d	0718+792	7	26	11.73	79	11	31.0	
d	0727-115	7	30	19.11	-11	41	12.6	PKS 0727-115
d	0733-174	7	35	45.81	-17	35	48.5	PKS 0733-174
d	0735+178	7	38	7.39	17	42	19.0	OII58, PKS 0735+178
d	0738-674	7	38	56.50	-67	35	50.8	PKS 0738-674
d	0736+017	7	39	18.03	1	37	4.6	PKS 0736+017
d	0738+313	7	41	10.70	31	12	0.2	B2 0738+31
d	0743-673	7	43	31.61	-67	26	25.5	PKS 0743-673
d	0742+103	7	45	33.06	10	11	12.7	PKS 0742+103
d	0743-006	7	45	54.08	0	-44	17.5	4C-00.28
d	0743+259	7	46	25.87	25	49	2.1	
d	0745+241	7	48	36.11	24	0	24.1	PKS 0745+241
d	0748+126	7	50	52.05	12	31	4.8	PKS 0748+126
d	0749+540	7	53	1.38	53	52	59.6	4C+54.15
d	0754+100	7	57	6.64	9	56	34.9	PKS 0754+100
d	0805-077	8	8	15.54	-7	51	9.9	PKS 0805-077
d	0804+499	8	8	39.67	49	50	36.5	S4 0804+49
d	0805+410	8	8	56.65	40	52	44.9	B3 0805+410
d	0808+019	8	11	26.71	1	46	52.2	PKS 0808+019
d	0812+367	8	15	25.94	36	35	15.1	B2 0812+36
d	0814+425	8	18	16.00	42	22	45.4	S4 0814+42
d	0820+560	8	24	47.24	55	52	42.7	4CP56.16A
d	0821+394	8	24	55.48	39	16	41.9	4C+39.23
d	0823-500	8	25	26.87	-50	10	38.5	PKS 0823-500
d	0823+033	8	25	50.34	3	9	24.5	PKS 0823+033
d	0823-223	8	26	1.57	-22	30	27.2	PKS 0823-223
d	0826-373	8	28	4.78	-37	31	6.3	PKS 0826-373
d	0827+243	8	30	52.09	24	10	59.8	B2 0827+24
d	0829+046	8	31	48.88	4	29	39.1	PKS 0829+046
d	0828+493	8	32	23.22	49	13	21.0	S4 0828+49
d	0831+557	8	34	54.90	55	34	21.1	4C+55.16
d	0834-201	8	36	39.22	-20	16	59.5	PKS 0834-201
d	0833+585	8	37	22.41	58	25	1.8	S4 0833+585
d	0836+710	8	41	24.36	70	53	42.2	4C+71.07
d	0839+187	8	42	5.09	18	35	41.0	PKS 0839+187
d	0851+202	8	54	48.87	20	6	30.6	OJ287, PKS 0851+202
d	0859-140	9	2	16.83	-14	15	30.9	PKS 0859-140
d	0859+470	9	3	3.99	46	51	4.1	4C+47.29
d	0906+015	9	9	10.09	1	21	35.6	4C+01.24
d	0912+029	9	14	37.91	2	45	59.2	PKS 0912+029
d	0912+297	9	15	52.40	29	33	24.0	B2 0912+29
d	0917+449	9	20	58.46	44	41	54.0	S4 0917+44
d	0917+624	9	21	36.23	62	15	52.2	S5 0917+62

	Name			R.A.			Dec.	Alias
d	0920-397	9	22	46.42	-39	59	35.1	PKS 0920-397
d	0923+392	9	27	3.01	39	2	20.9	4C39.25, 4C+39.25
d	0925-203	9	27	51.82	-20	34	51.2	PKS 0925-203
d	0945+408	9	48	55.34	40	39	44.6	4C+40.24
d	0953+254	9	56	49.88	25	15	16.1	OK290, VRO 25.09.08
d	0955+476	9	58	19.67	47	25	7.8	B3 0955+476
d	0955+326	9	58	20.95	32	24	2.2	3C232, 4C+32
d	0954+658	9	58	47.24	65	33	54.8	S4 0945+65
d	1004+141	10	7	41.50	13	56	29.6	PKS 1004+141
d	1011+250	10	13	53.43	24	49	16.4	B2 1011+25
d	1012+232	10	14	47.07	23	1	16.6	4C+23.24
d	1020+400	10	23	11.57	39	48	15.4	B3 1020+400
d	1021-006	10	24	29.59	0	-52	55.5	PKS 1021-006
d	1022+194	10	24	44.81	19	12	20.4	4C+19.34
d	1030+415	10	33	3.71	41	16	6.2	VRO 10.41.03
d	1032-199	10	35	2.16	-20	11	34.4	PKS 1032-199
d	1034-293	10	37	16.08	-29	34	2.8	PKS 1034-293
d	1038+064	10	41	17.16	6	10	16.9	4C+06.41
d	1038+528	10	41	46.78	52	33	28.2	
d	1040+123	10	42	44.60	12	3	31.3	3C245, 4C+12.37
d	1039+811	10	44	23.06	80	54	39.4	S5 1039+811
d	1042+071	10	44	55.91	6	55	38.3	PKS 1042+071
d	1044+719	10	48	27.62	71	43	35.9	
d	1048-313	10	51	4.78	-31	38	14.3	PKS 1048-313
d	1049+215	10	51	48.79	21	19	52.3	4C+21.28
d	1053+704	10	56	53.62	70	11	45.9	
d	1053+815	10	58	11.53	81	14	32.7	
d	1055+018	10	58	29.61	1	33	58.8	4C+01.28
d	1057-797	10	58	43.31	-80	3	54.2	PKS 1057-797
d	1101-536	11	3	52.22	-53	57	0.7	PKS 1101-536
d	1104-445	11	7	8.69	-44	49	7.6	PKS 1104-445
d	1105-680	11	7	12.69	-68	20	50.7	PKS 1105-680
d	1111+149	11	13	58.69	14	42	27.0	4C-00.43
d	1116-462	11	18	26.96	-46	34	15.0	PKS 1116-462
d	1116+128	11	18	57.30	12	34	41.7	4C+12.39
d	1123+264	11	25	53.71	26	10	20.0	PKS 1123+264
d	1124-186	11	27	4.39	-18	57	17.4	PKS 1124-186
d	1127-145	11	30	7.05	-14	49	27.4	PKS 1127-145
d	1128+385	11	30	53.28	38	15	18.6	B3 1128+385
d	1130+009	11	33	20.06	0	40	52.8	PKS 1130+009
d	1143-245	11	46	8.10	-24	47	32.9	PKS 1143-245
d	1144+402	11	46	58.30	39	58	34.3	B3 1144+402
d	1144-379	11	47	1.37	-38	12	11.0	PKS 1144-379
d	1145-071	11	47	51.55	-7	24	41.1	PKS 1145-071
d	1148-001	11	50	43.87	0	-23	54.2	4C-00.47
d	1148-671	11	51	13.43	-67	28	11.1	PKS 1148-671
d	1150+812	11	53	12.50	80	58	29.2	S5 1150+812
d	1150+497	11	53	24.47	49	31	8.8	4C+49.22

	Name			R.A.		Dec.	Alias	
d	1155+251	11	58	25.79	24	50	18.0	
d	1156-094	11	59	12.71	-9	40	52.0	PKS 1156-094
d	1156+295	11	59	31.83	29	14	43.8	4C+29.45
d	1213+350	12	15	55.60	34	48	15.2	4C+35.28
d	1215+303	12	17	52.08	30	7	0.6	B2 1215+30
d	1216+487	12	19	6.41	48	29	56.2	S4 1216+48
d	1219+285	12	21	31.69	28	13	58.5	W Com
d	1219+044	12	22	22.55	4	13	15.8	4C+04.42
d	1221+809	12	23	40.49	80	40	4.3	
d	1222+037	12	24	52.42	3	30	50.3	4C+03.23
d	1226+373	12	28	47.42	37	6	12.1	
d	1228+126	12	30	49.42	12	23	28.1	3C274, M87, Virgo A
d	1236+077	12	39	24.59	7	30	17.2	PKS 1236+077
d	1236-684	12	39	46.65	-68	45	30.9	PKS 1236-684
d	1243-072	12	46	4.23	-7	30	46.6	PKS 1243-072
d	1244-255	12	46	46.80	-25	47	49.3	PKS 1244-255
d	1252+119	12	54	38.26	11	41	5.9	PKS 1252+119
d	1251-713	12	54	59.92	-71	38	18.4	PKS 1251-713
d	1253-055	12	56	11.17	-5	47	21.5	3C279, 4C-05.55
d	1255-316	12	57	59.06	-31	55	16.8	PKS 1255-316
d	1257+145	13	0	20.92	14	17	18.5	PKS 1257+145
d	1302-102	13	5	33.01	-10	33	19.4	PKS 1302-102
d	1308+326	13	10	28.66	32	20	43.8	AU CVn
d	1313-333	13	16	7.99	-33	38	59.2	PKS 1313-333
d	1315+346	13	17	36.49	34	25	15.9	OP326, B2 1315+34A
d	1324+224	13	27	00.86	22	10	50.2	
d	1334-127	13	37	39.78	-12	57	24.7	PKS 1334-127
d	1338+381	13	40	22.95	37	54	43.8	
d	1342+662	13	43	45.96	66	2	25.8	
d	1342+663	13	44	8.68	66	6	11.7	
d	1347+539	13	49	34.66	53	41	17.0	1347+53, 4C+53.28
d	1349-439	13	52	56.53	-44	12	40.4	PKS 1349-439
d	1351-018	13	54	6.90	-2	6	3.2	PKS 1351-018
d	1354+195	13	57	4.44	19	19	7.4	4C+19.44
d	1354-152	13	57	11.24	-15	27	28.8	PKS 1354-152
d	1357+769	13	57	55.37	76	43	21.1	
d	1402-012	14	4	45.90	-1	30	21.9	PKS 1402-012
d	1402+044	14	5	1.12	4	15	35.8	PKS 1402+044
d	1404+286	14	7	00.39	28	27	14.7	OQ208, MRK 668
d	1406-076	14	8	56.48	-7	52	26.7	PKS 1406-076
d	1413+135	14	15	58.82	13	20	23.7	PKS 1413+135
d	1416+067	14	19	8.18	6	28	34.8	3C298
d	1418+546	14	19	46.60	54	23	14.8	S4 1418+54
d	1424-418	14	27	56.30	-42	6	19.4	PKS 1424-418
d	1430-178	14	32	57.69	-18	1	35.2	PKS 1430-178
d	1435+638	14	36	45.80	63	36	37.9	S4 1435+63
d	1435-218	14	38	9.47	-22	4	54.7	PKS 1435-218
d	1442+101	14	45	16.47	9	58	36.1	OQ172, PKS 1442+101

	Name			R.A.		Dec.		Alias
d	1443-162	14	45	53.38	-16	29	1.6	PKS 1443-162
d	1445-161	14	48	15.05	-16	20	24.5	PKS 1445-161
d	1448+762	14	48	28.78	76	1	11.6	
d	1451-375	14	54	27.41	-37	47	33.1	PKS 1451-375
d	1451-400	14	54	32.91	-40	12	32.5	PKS 1451-400
d	1458+718	14	59	7.58	71	40	19.9	3C309.1, 4C+71.15
d	1459+480	15	0	48.65	47	51	15.5	1459+48
d	1502+106	15	4	24.98	10	29	39.2	PKS 1502+106
d	1502+036	15	5	6.48	3	26	30.8	PKS 1502+036
d	1504+377	15	6	9.53	37	30	51.1	B3 1504+377
d	1504-166	15	7	4.79	-16	52	30.3	PKS 1504-166
d	1510-089	15	12	50.53	-9	5	59.8	PKS 1510-089
d	1511-100	15	13	44.89	-10	12	0.3	PKS 1511-100
d	1514+197	15	16	56.80	19	32	13.0	PKS 1514+197
d	1514-241	15	17	41.81	-24	22	19.5	AP Lib
d	1519-273	15	22	37.68	-27	30	10.8	PKS 1519-273
d	1532+016	15	34	52.45	1	31	4.2	PKS 1532+016
d	1538+149	15	40	49.49	14	47	45.9	4C+14.60
d	1547+507	15	49	17.47	50	38	5.8	
d	1546+027	15	49	29.44	2	37	1.2	PKS 1546+027
d	1548+056	15	50	35.27	5	27	10.5	4C+05.45
d	1549-790	15	56	58.87	-79	14	4.3	PKS 1549-790
d	1555+001	15	57	51.43	0	-1	50.4	PKS 1555+001
d	1600+335	16	2	7.26	33	26	53.1	
d	1604-333	16	7	34.76	-33	31	8.9	PKS 1604-333
d	1606+106	16	8	46.20	10	29	7.8	4C+10.45
d	1611+343	16	13	41.06	34	12	47.9	
d	1614+051	16	16	37.56	4	59	32.7	PKS 1614+051
d	1610-771	16	17	49.28	-77	17	18.5	PKS 1610-771
d	1616+063	16	19	3.69	6	13	2.2	PKS 1616+063
d	1619-680	16	24	18.44	-68	9	12.5	PKS 1619-680
d	1624+416	16	25	57.67	41	34	40.6	4C+41.32
d	1622-297	16	26	6.02	-29	51	27.0	PKS 1622-297
d	1633+382	16	35	15.49	38	8	4.5	
d	1637+574	16	38	13.46	57	20	24.0	S4 1637+57
d	1638+398	16	40	29.63	39	46	46.0	NRAO512
d	1642+690	16	42	7.85	68	56	39.8	4C+69.21
d	1641+399	16	42	58.81	39	48	37.0	3C345, 4C+39.48
d	1647-296	16	50	39.54	-29	43	47.0	PKS 1647-296
d	1652+398	16	53	52.22	39	45	36.6	DA426, 4C+39.49
d	1656+348	16	58	1.42	34	43	28.4	
d	1655+077	16	58	9.01	7	41	27.5	PKS 1655+077
d	1656+053	16	58	33.45	5	15	16.4	PKS 1656+053
d	1657-261	17	0	53.15	-26	10	51.7	PKS 1657-261
d	1705+456	17	7	17.75	45	36	10.6	4C+45.34
d	1705+018	17	7	34.42	1	48	45.7	PKS 1705+018
d	1706-174	17	9	34.35	-17	28	53.4	
d	1717+178	17	19	13.05	17	45	6.4	PKS 1717+178

	Name			R.A.			Dec.	Alias
d	1718-649	17	23	41.03	-65	0	36.6	NGC 6328
d	1726+455	17	27	27.65	45	30	39.7	B3 1726+455
d	1727+502	17	28	18.62	50	13	10.5	IIZW77
d	1725+044	17	28	24.95	4	27	4.9	PKS 1725+044
d	1730-130	17	33	2.71	-13	4	49.5	NRAO530, PKS 1730-132
d	1732+389	17	34	20.58	38	57	51.4	B3 1732+389
d	1738+476	17	39	57.13	47	37	58.4	S4 1738+47
d	1739+522	17	40	36.98	52	11	43.4	4C+51.37
d	1741-038	17	43	58.86	-3	50	4.6	PKS 1741-038
d	1743+173	17	45	35.21	17	20	1.4	PKS 1743+173
d	1745+624	17	46	14.03	62	26	54.7	4C+62.29
d	1749+701	17	48	32.84	70	5	50.8	S5 1749+70
d	1749+096	17	51	32.82	9	39	0.7	OT081, 4C+09.57
d	1751+441	17	53	22.65	44	9	45.7	S4 1751+44
d	1751+288	17	53	42.47	28	48	4.9	
d	1803+784	18	0	45.69	78	28	4.0	S5 1803+78
d	1800+440	18	1	32.32	44	4	21.9	B3 1800+440
d	1807+698	18	6	50.68	69	49	28.1	3C371
d	1815-553	18	19	45.40	-55	21	20.7	PKS 1815-553
d	1821+107	18	24	2.86	10	44	23.8	PKS 1821+107
d	1823+568	18	24	7.07	56	51	1.5	4C+56.27
d	1830+285	18	32	50.19	28	33	36.0	4C+28.45
d	1831-711	18	37	28.71	-71	8	43.6	PKS 1831-711
d	1845+797	18	42	8.99	79	46	17.1	3C390.3, 4C+79.18
d	1842+681	18	42	33.64	68	9	25.2	
d	1849+670	18	49	16.07	67	5	41.7	S4 1849+67
d	1856+736	18	54	57.30	73	51	19.9	
d	1901+319	19	2	55.94	31	59	41.7	3C395, 4C+31.52, 19
d	1908-201	19	11	9.65	-20	6	55.1	PKS 1908-201
d	1903-802	19	12	40.02	-80	10	5.9	PKS 1903-802
d	1920-211	19	23	32.19	-21	4	33.3	
d	1921-293	19	24	51.06	-29	14	30.1	OV236, PKS 1921-293
d	1923+210	19	25	59.61	21	6	26.2	PKS 1923+210
d	1928+738	19	27	48.50	73	58	1.6	4C+73.18
d	1925-610	19	30	6.16	-60	56	9.2	PKS 1925-610
d	1929+226	19	31	24.92	22	43	31.3	
d	1932+204	19	35	10.47	20	31	54.2	
d	1933-400	19	37	16.22	-39	58	1.6	PKS 1933-400
d	1936-155	19	39	26.66	-15	25	43.1	PKS 1936-155
d	1937-101	19	39	57.26	-10	2	41.5	PKS 1937-101
d	1935-692	19	40	25.53	-69	7	57.0	PKS 1935-692
d	1951+355	19	53	30.88	35	37	59.4	
d	1950-613	19	55	10.77	-61	15	19.1	PKS 1950-613
d	1954+513	19	55	42.74	51	31	48.5	PKS 1954+513
d	1954-388	19	57	59.82	-38	45	6.4	PKS 1954-388
d	1958-179	20	0	57.09	-17	48	57.7	OV198, PKS 1958-179
d	2000-330	20	3	24.12	-32	51	45.1	PKS 2000-330
d	2007+777	20	5	31.00	77	52	43.2	S5 2007+77

	Name			R.A.			Dec.	Alias
d	2005-489	20	9	25.39	-48	49	53.7	PKS 2005-489
d	2011-067	20	11	14.22	-6	44	3.6	OW-015
d	2008-159	20	11	15.71	-15	46	40.3	PKS 2008-159
d	2017+743	20	17	13.08	74	40	48.0	4C+74.25
d	2021+317	20	23	19.02	31	53	2.3	4C+31.56
d	2030+547	20	31	47.96	54	55	3.1	4C+54.42
d	2029+121	20	31	54.99	12	19	41.3	PKS 2029+121
d	2037+511	20	38	37.04	51	19	12.7	3C418, 4C+51.42
d	2051+745	20	51	33.74	74	41	40.5	
d	2052-474	20	56	16.36	-47	14	47.6	PKS 2052-474
d	2059+034	21	1	38.83	3	41	31.3	PKS 2059+034
d	2059-786	21	5	44.96	-78	25	34.5	PKS 2059-786
d	2106-413	21	9	33.19	-41	10	20.6	PKS 2106-413
d	2113+293	21	15	29.41	29	33	38.4	
d	2109-811	21	16	30.84	-80	53	55.2	PKS 2109-811
d	2126-158	21	29	12.18	-15	38	41.0	PKS 2126-158
d	2128-123	21	31	35.26	-12	7	4.8	PKS 2128-123
d	2131-021	21	34	10.31	-1	53	17.2	4C-02.81
d	2136+141	21	39	1.31	14	23	36.0	PKS 2136+141
d	2143-156	21	46	22.98	-15	25	43.9	PKS 2143-156
d	2144+092	21	47	10.16	9	29	46.7	PKS 2144+092
d	2142-758	21	47	12.73	-75	36	13.2	PKS 2142-758
d	2145+067	21	48	5.46	6	57	38.6	4C+06.69
d	2149+056	21	51	37.88	5	52	13.0	PKS 2149+056
d	2149-307	21	51	55.52	-30	27	53.7	PKS 2149-306
d	2146-783	21	52	3.15	-78	7	6.6	PKS 2146-783
d	2150+173	21	52	24.82	17	34	37.8	PKS 2150+173
d	2152-699	21	57	5.98	-69	41	23.7	
d	2155-152	21	58	6.28	-15	1	9.3	PKS 2155-152
d	2200+420	22	2	43.29	42	16	40.0	VR422201, BL Lac
d	2201+315	22	3	14.98	31	45	38.3	4C+31.63
d	2204-540	22	7	43.73	-53	46	33.8	PKS 2204-540
d	2209+236	22	12	5.97	23	55	40.5	PKS 2209+236
d	2216-038	22	18	52.04	-3	35	36.9	4C-03.79
d	2223-052	22	25	47.26	-4	57	1.4	3C446, 4C-05.92
d	2227-088	22	29	40.08	-8	32	54.4	PKS 2227-088
d	2229+695	22	30	36.47	69	46	28.1	2229+69
d	2227-399	22	30	40.28	-39	42	52.1	PKS 2227-399
d	2230+114	22	32	36.41	11	43	50.9	CTA102, 4C+11.69
d	2232-488	22	35	13.24	-48	35	58.8	PKS 2232-488
d	2234+282	22	36	22.47	28	28	57.4	B2 2234+28A
d	2233-148	22	36	34.09	-14	33	22.2	PKS 2233-148
d	2243-123	22	46	18.23	-12	6	51.3	PKS 2243-123
d	2245-328	22	48	38.69	-32	35	52.2	PKS 2245-328
d	2252-089	22	55	4.24	-8	44	4.0	PKS 2252-089
d	2253+417	22	55	36.71	42	2	52.5	B3 2253+417
d	2254+024	22	57	17.56	2	43	17.5	PKS 2254+024
d	2254+074	22	57	17.30	7	43	12.3	PKS 2254+074
d	2255-282	22	58	5.96	-27	58	21.3	PKS 2255-282

	Name			R.A.		Dec.		Alias
d	2311-452	23	14	9.38	-44	55	49.2	PKS 2311-452
d	2312-319	23	14	48.50	-31	38	39.5	PKS 2312-319
d	2318+049	23	20	44.86	5	13	49.9	PKS 2318+049
d	2319+272	23	21	59.86	27	32	46.4	4C+27.50
d	2320-035	23	23	31.95	-3	17	5.0	PKS 2320-035
d	2326-477	23	29	17.70	-47	30	19.1	PKS 2326-477
d	2328+107	23	30	40.85	11	0	18.7	4C+10.73
d	2329-384	23	31	59.48	-38	11	47.7	PKS 2329-384
d	2331-240	23	33	55.24	-23	43	40.7	PKS 2331-240
d	2335-027	23	37	57.34	-2	30	57.6	PKS 2335-027
d	2344+092	23	46	36.84	9	30	45.5	
d	2345-167	23	48	2.61	-16	31	12.0	PKS 2345-167
d	2351+456	23	54	21.68	45	53	4.2	4C+45.51
d	2351-154	23	54	30.19	-15	13	11.2	PKS 2351-154
d	2353-686	23	56	00.68	-68	20	3.5	PKS 2353-686
d	2355-534	23	57	53.27	-53	11	13.7	PKS 2355-534
d	2355-106	23	58	10.88	-10	20	8.6	PKS 2355-106
c	0002-478	0	4	35.66	-47	36	19.6	PKS 0002-478
c	0003+380	0	5	57.18	38	20	15.1	4C+38.02
c	0008-421	0	10	52.52	-41	53	10.8	PKS 0008-421
c	0022-423	0	24	42.99	-42	2	4.0	PKS 0022-423
c	0108+388	1	11	37.32	39	6	28.1	
c	0116+319	1	19	35.00	32	10	50.1	4C31.04
c	0118-272	1	20	31.66	-27	1	24.7	PKS 0118-272
c	0138-097	1	41	25.83	-9	28	43.7	PKS 0138-097
c	0153-410	1	55	37.06	-40	48	42.4	
c	0202-765	2	2	13.69	-76	20	3.1	PKS 0202-765
c	0237-027	2	39	45.47	-2	34	40.9	
c	0241+622	2	44	57.70	62	28	6.5	
c	0252-712	2	52	46.16	-71	4	35.3	
c	0317+188	3	19	51.26	19	1	31.3	
c	0334-546	3	35	53.92	-54	30	25.1	PKS 0334-546
c	0334+014	3	37	17.11	1	37	22.8	
c	0355-483	3	57	21.92	-48	12	15.2	PKS 0355-483
c	0355+508	3	59	29.75	50	57	50.2	NRAO150, 4C+50.11
c	0400-319	4	2	21.27	-31	47	25.9	
c	0403-132	4	5	34.00	-13	8	13.7	PKS 0403-132
c	0405-385	4	6	59.04	-38	26	28.0	PKS 0405-385
c	0405-123	4	7	48.43	-12	11	36.7	
c	0407-658	4	8	20.38	-65	45	9.1	PKS 0407-658
c	0431-512	4	32	21.18	-51	9	25.2	PKS 0431-512
c	0503-608	5	4	1.70	-60	49	52.5	PKS 0503-608
c	0517-726	5	16	37.72	-72	37	7.5	
c	0529+075	5	32	39.00	7	32	43.3	
c	0611+131	6	13	57.69	13	6	45.4	
c	0614-349	6	16	35.98	-34	56	16.6	PKS 0614-349
c	0615-365	6	17	32.32	-36	34	14.8	PKS 0615-365
c	0622-441	6	23	31.79	-44	13	2.5	PKS 0622-441

	Name			R.A.			Dec.	Alias
c	0647-475	6	48	48.45	-47	34	27.2	PKS 0647-475
c	0648-165	6	50	24.58	-16	37	39.7	PKS 0648-165
c	0700-465	7	1	34.55	-46	34	36.6	PKS 0700-465
c	0736-332	7	38	16.95	-33	22	12.8	PKS 0736-332
c	0809-493	8	11	8.80	-49	29	43.5	PKS 0809-493
c	0818-128	8	20	57.45	-12	58	59.2	PKS 0818-128
c	0842-754	8	41	27.04	-75	40	27.9	PKS 0842-754
c	0850+581	8	54	42.00	57	57	29.9	4C+58.17
c	0936-853	9	30	32.57	-85	33	59.7	PKS 0936-853
c	0952+179	9	54	56.82	17	43	31.2	0952+172, PKS 0952+179
c	0959-443	10	1	59.91	-44	38	0.6	PKS 0959-443
c	1038+529	10	41	48.90	52	33	55.6	
c	1045-188	10	48	6.62	-19	9	35.7	PKS 1045-188
c	1101-325	11	3	31.53	-32	51	16.7	PKS 1101-325
c	1117+146	11	20	27.81	14	20	55.0	4C+14.41
c	1128-047	11	31	30.52	-5	0	19.7	PKS 1128-047
c	1147+245	11	50	19.21	24	17	53.8	B2 1147+24
c	1206-399	12	9	35.24	-40	16	13.1	PKS 1206-399
c	1213-172	12	15	46.75	-17	31	45.4	PKS 1213-172
c	1215-457	12	18	6.25	-46	0	29.0	PKS 1215-457
c	1221-829	12	24	54.38	-83	13	10.1	PKS 1221-829
c	1234-504	12	37	15.24	-50	46	23.2	
c	1307+121	13	9	33.93	11	54	24.6	4C+12.46
c	1320-446	13	23	4.25	-44	52	33.8	PKS 1320-446
c	1328+307	13	31	8.29	30	30	33.0	3C286,4C+30.26
c	1334-649	13	37	52.44	-65	9	24.9	PKS 1334-649
c	1409+218	14	11	54.86	21	34	23.4	
c	1417+273	14	19	59.30	27	6	25.6	4C+27.28
c	1420+326	14	22	30.38	32	23	10.4	B2 1420+32
c	1424+240	14	27	0.39	23	48	0.0	PKS 1424+240
c	1432+200	14	34	39.79	19	52	0.7	PKS 1432+200
c	1433+304	14	35	35.40	30	12	24.5	
c	1540-828	15	50	59.14	-82	58	6.8	PKS 1540-828
c	1555-140	15	58	21.95	-14	9	59.1	
c	1656+477	16	58	2.78	47	37	49.2	S4 1656+47
c	1733-565	17	37	35.77	-56	34	3.2	PKS 1733-565
c	1740-517	17	44	25.45	-51	44	43.8	PKS 1740-517
c	1748-253	17	51	51.26	-25	24	0.1	
c	1758-651	18	3	23.50	-65	7	36.8	PKS 1758-651
c	1814-637	18	19	35.00	-63	45	48.2	PKS 1814-637
c	1817-254	18	20	57.85	-25	28	12.6	
c	1829-718	18	35	37.20	-71	49	58.2	PKS 1827-718
c	1936-623	19	41	21.77	-62	11	21.1	PKS 1936-623
c	1943+228	19	46	6.25	23	0	4.4	
c	1955+335	19	57	40.55	33	38	27.9	
c	2005+403	20	7	44.95	40	29	48.6	
c	2023+336	20	25	10.84	33	43	0.2	

	Name			R. A.			Dec.	Alias
c	2037-253	20	40	8.77	-25	7	46.7	PKS 2037-253
c	2048+312	20	50	51.13	31	27	27.4	CL4
c	2054-377	20	57	41.60	-37	34	3.0	PKS 2054-377
c	2058-425	21	1	59.11	-42	19	16.2	PKS 2058-425
c	2115-305	21	18	10.60	-30	19	11.6	PKS 2115-305
c	2155-304	21	58	52.06	-30	13	32.1	PKS 2155-304
c	2210-257	22	13	2.50	-25	29	30.1	PKS 2210-257
c	2211-388	22	14	38.57	-38	35	45.0	PKS 2211-388
c	2259-374	23	2	23.89	-37	18	6.8	PKS 2259-374
c	2300-307	23	3	5.82	-30	30	11.5	PKS 2300-307
c	2320+506	23	22	25.98	50	57	52.0	
c	2325-150	23	27	47.96	-14	47	55.8	PKS 2325-150
c	2329-162	23	31	38.65	-15	56	57.0	PKS 2329-162
c	2333-528	23	36	12.14	-52	36	22.0	PKS 233-528
o	0019+000	0	22	25.43	0	14	56.1	4C+00.02
o	0024+348	0	26	41.73	35	8	42.3	OB338
o	0036-216	0	38	29.90	-21	20	5.0	PKS 0036-216
o	0218+357	2	21	5.47	35	56	13.7	
o	0218+35A	2	21	5.47	35	56	13.7	
o	0218+35B	2	21	5.47	35	56	14.1	
o	0237-233	2	40	8.17	-23	9	15.7	
o	0250+178	2	53	34.88	18	5	42.5	
o	0316+413	3	19	48.16	41	30	42.1	3C84, PerA, NGC1275
o	0335-122	3	37	55.56	-12	4	12.5	
o	0336-017	3	39	0.80	-1	33	7.0	
o	0411+054	4	14	37.59	5	34	46.2	
o	0420-625	4	20	56.13	-62	23	39.7	
o	0428+205	4	31	3.76	20	37	34.3	
o	0430+052	4	33	11.10	5	21	15.6	3C120, BW Tau
o	0434+299	4	38	4.91	30	4	32.4	
o	0454-463	4	55	51.27	-46	15	58.1	
o	0515-674	5	15	37.54	-67	21	27.8	
o	0537-692	5	36	57.06	-69	13	24.7	
o	0558-504	5	59	46.82	-50	26	52.6	PKS 0558-504
o	0629+104	6	32	15.33	10	22	2.2	4C+10.20
o	0710+439	7	13	38.16	43	49	17.2	S4 0710+43
o	0727-365	7	29	5.39	-36	39	45.1	
o	0902+343	9	5	30.11	34	7	57.2	B2 0902+34
o	0919-260	9	21	29.35	-26	18	43.4	PKS 0919-260
o	0941-080	9	43	36.95	-8	19	30.9	PKS 0941-080
o	0954+556	9	57	38.17	55	22	58.0	4C+55.17
o	1031+567	10	35	7.04	56	28	46.8	S4 1031+56
o	1226+023	12	29	6.70	2	3	8.6	3C273B, 4C+02.32
o	1245-197	12	48	23.90	-19	59	18.7	PKS 1245-197
o	1323+321	13	26	16.51	31	54	9.5	
o	1328+254	13	30	37.69	25	9	11.0	4C+25.43
o	1329-665	13	32	37.55	-66	46	50.1	

	Name			R. A.		Dec.		Alias
o	1345+125	13	47	33.36	12	17	24.2	4C+12.50
o	1352-104	13	52	6.84	-10	26	21.3	PKS 1352-104
o	1355-416	13	59	0.18	-41	52	52.6	PKS 1355-416
o	1421-490	14	24	32.30	-49	13	49.0	PKS 1421-178
o	1511+238	15	13	40.19	23	38	35.2	4C+23.41
o	1607+268	16	9	13.32	26	41	29.0	CTD93, PKS 1607+268
o	1622-253	16	25	46.89	-25	27	38.3	PKS 1622-253
o	1634+628	16	34	33.80	62	45	35.9	3C343, 4C+62.26
o	1637+626	16	38	28.20	62	34	44.3	3C343.1, 4C+63.27
o	1709-342	17	13	9.91	-34	18	28.9	
o	1710-269	17	13	31.25	-26	58	52.3	
o	1710-323	17	13	50.79	-32	26	12.0	
o	1714-336	17	17	36.00	-33	42	8.2	
o	1741-312	17	44	23.58	-31	16	36.0	
o	1756-663	18	1	18.08	-66	23	1.0	PKS 1756-663
o	1813-241	18	16	49.60	-24	5	59.2	
o	1826+796	18	23	14.11	79	38	49.0	
o	1827-360	18	30	58.88	-36	2	30.2	PKS 1827-360
o	1829-106	18	32	20.84	-10	35	11.3	
o	1830-211	18	33	39.90	-21	3	40.0	PKS 1830-210
o	1830-21A	18	33	39.89	-21	3	40.7	
o	1830-21B	18	33	39.94	-21	3	40.0	
o	1848+333	18	50	4.79	33	21	45.8	
o	1855+031	18	58	2.34	3	13	16.4	
o	1934+207	19	36	48.02	20	51	36.8	
o	1934-638	19	39	25.03	-63	42	45.6	PKS 1934-638
o	1947+079	19	50	5.54	8	7	14.0	PKS 1947+079
o	2021+614	20	22	6.68	61	36	58.8	S4 2021+61
o	2027+383	20	28	54.11	38	32	47.7	
o	2044-168	20	47	19.66	-16	39	5.8	PKS 2044-168
o	2100+468	21	2	17.04	47	2	16.2	
o	2121+053	21	23	44.52	5	35	22.1	OX036, PKS 2121+053
o	2128+048	21	30	32.88	5	2	17.5	PKS 2128+048
o	2134+004	21	36	38.59	0	41	54.2	
o	2251+158	22	53	57.75	16	8	53.6	3C454.3, 4C+15.76
o	2310-417	23	12	55.61	-41	26	56.1	PKS 2310-417
o	2314+038	23	16	35.09	4	5	19.8	2314+03, 4C+03.57
o	2322-411	23	25	3.42	-40	51	30.1	PKS 2322-411
o	2337+264	23	40	29.03	26	41	56.8	
o	2352+495	23	55	9.46	49	50	8.3	S4 2352+49

Resolution No. B 5
on the Working Group on Reference Frames
The participants of Symposium 166
sur le Groupe de Travail Reference Frames
Les participants au Symposium 166

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant que le Groupe de travail sur le Repères de Référence composé de membres des Commissions 4, 8, 19, 24 et 31, du Service International de la Rotation de l'Heure (IERS) et d'autres experts du domaine a été formé pour dresser une liste de sources radio extra galactiques potentielles destinées à définir le nouveau repère de référence et de sources secondaires susceptibles d'être ajoutées ou de remplacer ultérieurement les sources primaires,

Notant qu'une liste des sources qui définissent le repère de référence conventionnel et comprenant également une liste de sources possibles qui pourraient, ultérieurement, être ajoutées aux ou remplacer les sources déterminées ont été établies,

Recommande que ces listes de sources de définition soient adoptées par la XXIIe Assemblée Générale (1994) comme première étape de la définition d'un nouveau repère de référence, et

Demande que le Groupe de Travail sur les Repères de Référence soit maintenu et que sa composition soit révisée par les Commissions 4, 8, 19, 24 et 31 et l'IERS de façon à

1. définir les positions des radio sources sur la liste
2. déterminer la relation de ce repère à un repère optique défini par des étoiles et,
3. recommander à la XXIIIe Assemblée Générale de l'UAI (1997) qu'une procédure soit instaurée qui permette d'organiser le travail de mise à jour et d'évolution de ce repère et son application à d'autres longueurs d'onde.

Resolution No. B 6
on the Second Generation of the STScI Guide Star Catalog
The participants of Symposium 166
sur la seconde génération du Catalogue d'Etoiles Guide du STScI
Les participants au Symposium 166

The XXIInd General Assembly of the International Astronomical Union

Taking into account the immense importance to the entire astronomical community of the STScI's Guide Star Catalog (GSC),

Taking into account the expected characteristics of the proposed GSC-II project,

Taking into account the expected implications of the availability of the GSC-II for countless applications in ground-based and space-based astrometry over the coming decades,

Taking into account the anticipated distribution of compressed second-generation plate scans to the astronomical community, and

Taking into account the scientific and technical competence at STScI, the availability of the plate material and digitizing facilities, and the team's willingness to undertake the GSC-II project,

Urges NASA and other relevant national and international funding agencies to do their utmost to ensure the necessary funding for timely completion of the second-generation plate scanning and the construction of the GSC-II at STScI, and urges the international community to engage in broadening the support and in pursuing derivative collaborative projects.

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Prenant en compte l'importance considérable pour l'ensemble de la communauté astronomique du Catalogue d'Etoiles Guide du STScI (GSC),

Prenant en compte les caractéristiques prévues du projet GSC II proposé,

Prenant en compte les implications prévisibles de la disponibilité de GSC-II pour des applications innombrables dans l'astrométrie au sol et spatiale durant les prochaines décades,

Prenant en compte la distribution anticipée de balayages de plaques de seconde génération compressées auprès de la communauté astronomique, et

Prenant en compte les compétences scientifiques et techniques existant au STScI, l'existence d'équipements destinés au traitement des plaques, la disponibilité de moyens en calcul digital et la volonté de l'équipe d'entreprendre le projet GSC-II,

Demande instamment à la NASA et tout autre agence de financement compétente nationale et internationale de faire leur possible pour assurer le financement nécessaire pour l'accomplissement en temps voulu du balayage par plaques de seconde génération ainsi que l'élaboration de GSC-II, et encourage la communauté internationale à se mobiliser en élargissant son soutien et en poursuivant les projets de collaboration qui en découlent.

Resolution No. B 7

on the Need to develop sub-milliarcsecond optical Astrometry

The participants of Symposium 166

sur le besoin de développer l'astrométrie optique submillimétrique

Les participants au Symposium 166

The XXIInd General Assembly of the International Astronomical Union

Considering that the Symposium 166 has discussed the many aspects of Solar System, Galactic and Extragalactic Astronomy and Astrophysics requiring high accuracy optical astrometry,

Emphasizes the strong need for sub-milliarcsecond accuracy astrometric data for very large numbers of stars,

Notes that satellite options have been proposed, orders of magnitude more accurate and productive than the very successful HIPPARCOS/TYCHO missions,

Urges the Space Agencies to study the possibilities of sub-milliarcsecond optical projects as soon as possible, taking advantage of the present high level of expertise and dedication.

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant que le Symposium 166 ayant examiné les divers aspects de l'Astronomie du Système Solaire, galactique et extragalactique et l'Astrophysique exigeant une astrométrie optique de haute précision,

Souligne le besoin aigu de données astrométriques d'une précision de l'ordre de la "sub-milliarcsecond" pour un très grand nombre d'étoiles

Note que des options de satellites ont été proposées d'ordres de magnitude plus précis et plus productifs que les missions HIPPARCOS/TYCHO par ailleurs très réussies,

Demande instamment aux Agences Spatiales d'étudier les possibilités de projets optiques "submilliarcsecond" dès que possible, en tirant profit du niveau actuel élevé de compétence et de dévouement.

Resolution No. B 8

on a Joint Working Group of IAU and IUGG on the Non-Rigid Earth Nutation Commissions 4 (Ephemerides), 7 (Celestial Mechanics) and 19 (Rotation of the Earth)

sur la création d'un Groupe de Travail commun IAU/IUGG sur la nutation de la Terre non-rigide

Les Commissions 4 (Ephémérides), 7 (Mécanique Céleste) et 19 (Rotation de la Terre)

The XXIIInd General Assembly of the International Astronomical Union

Recognising

1. that an accepted geophysical nutation theory for the non-rigid Earth with oceans and atmosphere, including all known effects at the one tenth milliarsecond level, is not yet available and requires further study,
2. that the observations of the Earth's nutation provide useful information about the physics of the Earth's interior

Establishes an inter-commission Working Group on the non-rigid Earth Nutation Theory to be organized by the Presidents of Commissions 4, 7 & 19, under the leadership of V. Dehant, and

Invites the IUGG to join the IAU in sponsoring this Working Group in order to form a joint IAU/IUGG Working Group on this topic.

IUGG International Union of Geodesy & Geophysics

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Constatant

1. qu'une théorie de la nutation géophysique reconnue pour la Terre non-rigide avec ses océans et son atmosphère, intégrant tout les effets connus au dixième de milliarc de seconde, n'est pas encore disponible et demande des études complémentaires,
2. que les observations de la nutation de la Terre fournissent des informations utiles sur la physique de l'intérieur de la Terre,

Instaure un groupe de travail inter-commissions sur la Théorie de la Nutation de la Terre non-rigide qui sera organisé par les Présidents des Commissions 4, 7 & 19, sous la direction de V. Dehant, et

Invite l'IUGG à se joindre à l'IAU en parrainant ce Groupe de travail pour former un Groupe de Travail commun IAU/IUGG sur ce thème.

Resolution No. B 9

on the Policy with respect to Hazardous Near-Earth Objects

Joint Working Group on Near Earth Objects

sur la police en matière d'objets hasardeux à proximité de la Terre

Groupe de Travail commun sur les objets hasardeux à proximité de la Terre (NEO)

The XXIIInd General Assembly of the International Astronomical Union

Recognising:

1. that cosmic impact by comets and minor planets is an environmentally significant phenomenon which has played a major role in the evolution of life on Earth,
2. that our current knowledge of the quality, distribution and actual orbits of NEO, is very limited,
3. that an inventory of NEO, as complete as possible with present techniques, is best achieved through a cooperative, internationally coordinated program of observation and data collection,
4. that the IAU, and specifically its Working Group on NEO's, is the only international body currently involved in this field, whereas several national communities are ready to plan operations, therefore

Recommends that the WGNEO be continued as a Working Group of the Solar System Division- in order:

1. to encourage and assist with coordination of national initiatives,
2. to prepare, within 3 years, an assessment of the relative merits and defects of places for these searches,
3. to invite other scientific organizations, such as COSPAR, IUGG, etc., to join IAU in this effort,
4. to foster and encourage dissemination of accurate information on the nature and extent of the NEO hazard,
5. to report back, to the XXIIIrd General Assembly in 1997, on the status of this activity.

COSPAR Committee on Space Research

IUGG International Union of Geodesy & Geophysics

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Reconnaissant

1. que l'impact cosmique par les comètes et les planètes mineures est un phénomène d'environnement significatif qui a joué un rôle majeur dans l'évolution de la Vie sur Terre,
2. que notre connaissance actuelle de la qualité, de la distribution et des orbites exactes des NEO est très limitée,
3. qu'un inventaire des NEO aussi complet que possible par les techniques actuelles sera mieux effectué par un programme international commun d'observations et de collecte de données

Recommande que le WGNEO soit continué -en tant que Groupe de Travail de la division Système Solaire- afin

1. d'encourager et aider la coordination des initiatives nationales
2. de préparer, à échéance de 3 ans, une évaluation des mérites et défauts respectifs des études entreprises,
3. d'inviter d'autres organisations scientifiques, telles que COSPAR, IUGG, etc... à se joindre à l'UAI dans cette entreprise
4. de stimuler et d'encourager la dissémination d'une information exacte sur la nature et l'importance des NEO hasardeux
5. de rapporter, lors de la XXIIIe Assemblée Générale en 1997, l'état de cette activité.

Resolution No. B 10
on the Preservation of Astronomical Relics
Commission 41 (History of Astronomy)
sur le protection des vestiges astronomique
La Commission 41 (Histoire de l'Astronomie)

The XXIIInd General Assembly of the International Astronomical Union

Considering the scientific, historical and practical importance of the measurement of the arc of meridian made by F.G.W. Struve,

Urges the Executive Committee of the IAU to approach the governments of the following countries: Norway, Sweden, Finland, Estonia, Latvia, Lithuania, Ukraine, Belarus, Poland and Moldavia, which still possess relics of that enterprise, with a view to taking all possible steps to preserve those relics, including an approach to UNESCO to declare them to be world-heritage sites.

UNESCO United Nations Educational, Scientific and Cultural Organization

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant l'importance scientifique, historique et pratique de la mesure de l'arc du méridien faite par F.G.W. Struve,

Demande instamment au Comité Exécutif de l'UAI de se mettre en relation avec les gouvernements des pays suivants : Norvège, Suède, Finlande, Estonie, Lettonie, Lituanie, Ukraine, Bélorussie, Pologne et Moldavie, lesquels possèdent encore des vestiges de cette entreprise, en vue de prendre toutes les mesures possibles pour protéger ces vestiges, y compris par l'approche de l'UNESCO afin de les déclarer sites d'héritage mondial.

Resolution No. B 11
on the Continuation and Extension of the activities of the Working Group on Astronomical Standards (WGAS)
Working Group on Astronomical Standards (in which Commissions 4, 5 (Documentation and Astronomical Data), 8 (Positional Astronomy), 19 (Rotation of the Earth), 24 (Photographic Astrometry) and 31 (Time) participate) at the occasion of JD 14
sur la continuation et l'extension des activités du Groupe de Travail sur les Standards Astronomique (WGAS)
Le Groupe de Travail sur les Standards Astronomiques (commun au Commissions 4 (Ephémérides), 5 (Documentations et Données Astronomiques), 8 (Astronomie de Position), 19 (Rotation de la Terre), 24 (Astrométrie Photographique) and 31 (l'Heure) lors de la JD 14

The XXIIInd General Assembly of the International Astronomical Union

Considering that the interchangeability of observational data, whether processed or not, requires the widespread use of a common set of constants and algorithms that implement standard models used in fundamental astronomy,

Recommends that

1. the IAU Working Group on Astronomical Standards (WGAS) continue permanently and assume the responsibility for establishing and maintaining a set of constants, algorithms, and procedures,

2. the IAU WGAS identify single center at a suitable institution, under a worldwide reviewing board, to organize, maintain, and distribute electronically the set of constants, algorithms, and procedures, and
3. the center, and the IAU WGAS coordinate their activities with the IERS and the IAG.

IERS *International Earth Rotation Service*
IAG *International Association of Geodesy*

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant que l'interchangeabilité des données observationnelles, tant exploitées que non exploitées, requiert l'utilisation généralisée d'un ensemble de constantes et d'algorithmes communs qui s'appliquent aux modèles standards utilisés en astronomie fondamentale

Recommande que

1. le Groupe de Travail sur les standards Astronomiques (WGAS) soit maintenu de façon permanente et assume la responsabilité de l'établissement et de la mise à jour d'un ensemble de constantes, d'algorithmes et de procédures;
2. le WGAS de l'UAI identifie un centre unique au sein d'une institution adéquate, sous la responsabilité d'un bureau d'experts mondial, pour organiser, mettre à jour et distribuer électroniquement l'ensemble des constantes, algorithmes et procédures; et
3. ce centre et le WGAS de l'UAI coordonnent leurs activités avec l'IERS et l'IAG.

Resolution No. B 12

on an Inter-Union Working Group concerning Millimeter and Submillimeter Astronomy

Commission 40 (Radio Astronomy)

sur un Groupe de Travail Inter-Unions concernant l'astronomie millimétrique et submillimétrique

La Commission 40 (Radioastronomie)

The XXIInd General Assembly of the International Astronomical Union

Considering

- a. the strong scientific case for a large millimetre/submillimetre telescope array with an order of magnitude greater sensitivity and resolution than any of the existing facilities,
- b. the need for innovative technical developments to realise such a facility at a reasonable cost,
- c. the need for international collaboration in order to realise such an instrument,
- d. the existence of the URSI Commission J Working group in this domain,

Resolves to seek an Inter-Union Working Group with similar terms of reference, namely:

1. to study the main scientific objectives in millimetre/submillimetre astronomy for the early 2000s,
2. to coordinate and evaluate the radio seeing data for site evaluation and observing strategy,
3. to study new designs for telescopes and instrumentation,
4. to investigate potential international partnerships.

URSI *Union Radio Scientifique Internationale*

La XXII^e Assemblée Générale de l'Union Astronomique Internationale

Considérant

- a. le besoin essentiel d'un ensemble de grands télescopes millimétriques et submillimétriques de sensibilité et de résolution d'un ordre de magnitude plus grand que tous ceux existants,
- b. le besoin de développement de techniques innovatives pour réaliser un tel instrument à un coût raisonnable,
- c. le besoin d'une collaboration internationale pour réaliser un tel instrument,

d. l'existence du groupe de travail de la Commission J de l'URSI dans ce domaine,

décide de demander au Comité Exécutif de l'UAI l'établissement d'un Groupe de Travail Inter-Unions ayant les mêmes buts, à savoir :

1. l'étude des objectifs scientifiques principaux en astronomie millimétrique et submillimétrique
2. la coordination et l'évaluation des données "seeing" radio pour l'évaluation de sites et la stratégie d'observation
3. l'étude de nouvelles conceptions de télescopes et d'instrumentations
4. l'investigation de partenaires internationaux potentiels.

Resolution No. B 13

*on an Inter-Union Working Group concerning a Large Radiotelescope
Commission 40 (Radio Astronomy)*

*sur un Groupe de Travail Inter-Unions concernant un grand radiotélescope
La Commission 40 (Radioastronomie)*

The XXIInd General Assembly of the International Astronomical Union

Considering

- a. the strong scientific case for a new, internationally accessible radiotelescope with one to two orders of magnitude greater sensitivity than that of any existing or planned facility,
- b. the need for innovative technical developments to realize such a facility at an affordable price,
- c. the need for international collaboration to allow realization of this facility,
- d. the existence of an URSI Commission J Working Group with the same terms of reference,

Resolves to ask the Executive Committee of the IAU to seek an Inter-Union Working Group with the following terms of reference:

1. to explore the range of scientific problems to be addressed by the instrument,
2. to discuss the technical specifications and general design considerations needed to maximize the scientific return of such a facility,
3. to identify and, in so far as possible, resolve the major technical challenges to realization of an affordable radiotelescope with the required sensitivity.

URSI Union Radio Scientifique Internationale

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant

- a. le besoin essentiel d'un nouveau radiotélescope d'accès international d'une sensibilité d'un ou deux ordre(s) de magnitude plus grand(s) que tous ceux existants ou dont la construction est prévue,
- b. le besoin de développements de techniques innovatives pour réaliser un tel instrument à un coût raisonnable,
- c. le besoin d'une collaboration internationale pour réaliser un tel instrument,
- d. l'existence du groupe de travail de la Commission J de l'URSI dans ce domaine,

décide de demander au Comité Exécutif de l'UAI l'établissement d'un Groupe de Travail Inter-Unions ayant les buts suivants :

1. l'étude des problèmes scientifiques à résoudre par l'instrument,
2. l'étude des spécifications techniques et des considérations conceptuelles générales à prendre en considération pour optimiser les retombées scientifiques d'un tel équipement,
3. l'identification et, dans la mesure du possible, la résolution des défis techniques majeurs permettant la réalisation d'un radiotélescope à un coût raisonnable offrant la sensibilité requise.

Resolution No. B 14

on considering the Sharing of the Hydroxyl Band with Land Mobile Satellite Services

Commission 40 (Radio Astronomy)

sur le partage de la bande hydroxyle avec les services mobiles au sol

La Commission 40 (Radioastronomie)

The XXIIInd General Assembly of the International Astronomical Union

Recognising

- a. that the 1660-1660.5 MHz band is allocated to the Radio Astronomy Service on a shared, primary basis, and is used to observe hydroxyl lines, which are of the highest astrophysical importance, in many galaxies in the nearby Universe,
- b. that the World Administrative Radio Conference for the Mobile Services (WARC MOB-87) has also allocated the 1660-1660.5 MHz band to the land mobile satellite service,
- c. that WARC MOB-87 has added Footnote 730A to the Radio Regulations, allowing administrations to authorize aircraft stations and ship stations to communicate with space stations in the land mobile satellite service in the 1660-1660.5 MHz band,
- d. that ITU-R Study Group 8 has established Working Party 8D to study, among other characteristics of mobile satellite systems, the necessary criteria for frequency sharing between the various mobile satellite systems and other services allocated the same bands,

Urges

1. that IUCAF, in representation of the International Astronomical Union interact, as a matter of urgency, with Working Party 8D and with Working Party 7D to work out the necessary criteria under which the radio astronomy service, and the land mobile satellite service and services authorized under Footnote 730, may share the 1660-1660.5 MHz band,

2. that IUCAF make it clear to Working Party 8D that sharing between radio astronomy stations and aircraft stations is not possible when aircraft are above the horizon of a radio astronomy observatory,
3. that administrations adhering to the International Astronomical Union and to the International Telecommunication Union bear in mind at the next competent WARC the importance of the primary allocation to the radio astronomy service in the band 1660-1660.5 MHz,

and instructs the Executive Committee of the IAU to request the Director of ITU-R to bring this Resolution to the attention of the Chairman of Working Party 8D.

ITU International Telecommunication Union
IUCAF Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Sciences

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Considérant

- a. que la bande 1600-1660.5 MHz est attribuée au Service de la Radioastronomie sur une base de priorité et de partage et qu'elle est utilisée pour l'observation des raies de l'hydroxyle qui sont de la plus grande importance astrophysique dans de nombreuses galaxies appartenant à l'Univers proche ;
- b. que la Conférence Administrative Mondiale des Radiocommunications pour les services mobiles (WARC MOB-87) a aussi attribué la bande 1660-1660.5 MHz aux services mobiles au sol associés aux satellites
- c. que la WARC MOB-87 a ajouté la note 730A aux Réglementations Radio, permettant ainsi aux administrations d'autoriser les stations embarquées sur avion ou sur bateau de communiquer avec les stations spatiales par des services mobiles dans la bande ;
- d. que le Groupe d'Etude 8 de l'IT-R a mis en place le Working Party 8D pour étudier, entre autres caractéristiques des systèmes de satellites mobiles, les critères nécessaires au partage de bande de fréquence entre les différents systèmes de satellites mobiles et les autres services qui se voient allouées les mêmes bandes.

Recommande de façon pressante

1. que l'IUCAF, en qualité de représentant de l'Union Astronomique Internationale interagisse de toute urgence avec le Working Party 8D et le Working Party 7D pour dégager les critères nécessaires au partage de la bande 1660-1660.5 MHz par le Service de Radioastronomie et les services mobiles au sol associés aux satellites et les services autorisés par la note 730;
2. que l'IUCAF informe clairement le Working Party 8D que le partage entre les stations radioastronomiques et les stations aéronautiques n'est pas possible quand les aéronefs sont au-dessus de l'horizon d'un observatoire radioastronomique;
3. que les administrations adhérant à l'Union Astronomique Internationale et à l'Union Internationale des Télécommunications aient en mémoire, lors de la prochaine WRC concernée, l'importance d'attribuer en premier au Service de la Radioastronomie la bande 1660-1660.5 MHz.

et invite le Comité Exécutif de l'Union Astronomique Internationale à demander au Directeur de l'UTI-R de porter cette résolution à l'attention du Président du WP8D.

Resolution No. B 15

concerning the Bands to be used for Radiocommunications in the lunar environment

Commissions 40 (Radio Astronomy) and 50 (Protection of Existing and Potential Observatory Sites)

sur les bandes destinées à l'utilisation à des fins de radiocommunication dans l'environnement lunaire

Les Commissions 40 (Radioastronomie) and 50 (Protection des Sites d'Observatoires Existants et Potentiels)

The XXIInd General Assembly of the International Astronomical Union

Considering

- a. that radiocommunication systems between the Moon and the Earth, on the surface of the Moon, and in the surrounding environment of the Moon, are expected to be required in support of space research activities, including radio astronomy observations,
- b. that some radiocommunication will be required in the shielded zone of the Moon (szm) as defined by RR ARTICLE 29, Sect VI,
- c. that by the use of certain radio frequency bands the requirements for such radiocommunication can be accommodated while at the same time providing the protection for radio astronomy intended by RR ARTICLE 29, Sect IV,
- d. that in the szm it is necessary to preserve as much of the spectrum as possible free of emissions,
- e. that in assigning frequencies to the necessary transmissions it is important to avoid bands that:
 - i. are of great astronomical importance,
 - ii. are difficult to observe from Earth because of interference or absorption in the atmosphere or ionosphere,
 - iii. are important for interferometry between the Earth and the Moon,
- f. that the bands mentioned in (e) include:
 - i. all frequencies below 2 GHz,
 - ii. frequencies of the most important spectral lines (IAU list) with bandwidth to cover essential red and blue shifts,
 - iii. radio astronomy allocations used on Earth for continuum observations with allowance for greater bandwidth to improve sensitivity,

Recommends

1. that two alternative bands be allocated to the necessary active services in the szm to retain access by the passive services to the whole spectrum on a time-coordinated basis,
2. that radiocommunication in the shielded zone of the Moon be limited to the band 2000-3000 MHz,
3. that an alternative frequency band at least 1 GHz wide be identified to permit future operations on a time-coordinated basis between radio astronomy and lunar communication systems

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Considérant

- a. que ses systèmes de radio communication entre la Lune et la Terre, à la surface de la Lune, et dans l'environnement proche de la Lune seront nécessaires à l'accomplissement des activités de recherche spatiale, incluant les observations radioastronomiques;
- b. que des communications radio seront nécessaires dans la zone de protection (szm) définie par RR article 29, Sec. IV;
- c. que l'utilisation de certaines bandes de fréquence radio peuvent répondre aux demandes de ces radiocommunications tout en fournissant une protection pour la radioastronomie telle que prévue par RR article 29, Sect. IV;
- d. que dans la szm il faut préserver d'émissions le spectre autant que faire se peut;
- e. qu'en assignant des fréquences aux transmissions nécessaires il est important d'éviter les bandes qui:
 - i. sont d'un grand intérêt astronomique,
 - ii. sont difficiles à observer depuis la Terre en raison d'interférences ou d'absorption dans l'atmosphère ou l'ionosphère,
 - iii. sont importantes pour l'interférométrie entre la Terre et la Lune;
- f. que les bandes mentionnées en (e) comprennent:
 - i. toutes les fréquences en-dessous de 2 GHz,
 - ii. les fréquences des raies spectrales les plus importantes (liste IAU) avec une largeur de bande couvrant les décalages essentiels vers le rouge et le bleu,
 - iii. les allocations radioastronomiques utilisées sur Terre pour des observations continues permettant une largeur de bande plus grande afin d'améliorer la sensibilité;

Recommande

1. que deux bandes alternatives soient attribuées aux services actifs concernés de la szm afin de maintenir l'accès au spectre entier sur une base de coordonnées de temps;
2. que les radiocommunications dans la zone protégée de la Lune soit limitées à la bande 2000-3000 MHz;
3. que la bande de fréquence alternative d'une largeur minimale de 1 GHz soit identifiée pour permettre les opérations à venir sur une base de coordonnées de temps entre la radioastronomie et les systèmes de communication lunaires.

Resolution No. B 16

concerning the International Decade of Solar Cycle Studies (IDSCS)

Commissions 10 (Solar Activity)

sur la Décade Internationale des Etudes du Cycle Solaire (IDSCS)

La Commission 10 (Activité Solaire)

The XXIInd General Assembly of the International Astronomical Union

Taking into account the fact that previous long term solar programs focused mainly on the years around minimum or maximum, and did not cover a full cycle for observing solar-terrestrial phenomena, whereas understanding of solar cyclic periodicity requires study of its various manifestations over an entire activity cycle,

that space missions (e.g. SOHO) and major ground-based projects (GONG) planned for the late 1990's into the early 2000's promise important achievements in solar-terrestrial studies,

and that according to its Constitution, one of the main tasks of SCOSTEP is to organize and coordinate STP programs of interest to, and approved by, at least two of the ICSU Participating Bodies,

adopts the proposed project with the preliminary name IDSCS -International Decade of Solar Cycle Studies- aimed at the study of specific solar-terrestrial phenomena during the entire 23rd solar cycle, with special emphasis on the main phases of the cycle, and **recommends** that SCOSTEP take all necessary actions to organize the Project for the term 1997-2007.

*ICSU International Council for Scientific Unions
SCOSTEP Scientific Committee on Solar-Terrestrial Physics*

La XXIIe Assemblée Générale de l'Union Astronomique Internationale

Prenant en compte que les précédents programmes solaires à long terme portaient principalement sur les années proches du minimum ou du maximum et ne couvraient pas un cycle complet pour l'observation des phénomènes soleil-terre, alors que la compréhension de la périodicité cyclique solaire requiert une étude de ses diverses manifestations sur un cycle entier d'activité;

les missions spatiales (e.g. SOHO) et les projets majeurs au sol (GONG) prévus pour la fin des années 1990 et le début des années 2000 promettent d'importants résultats dans les études soleil-terre,

et que selon ses Statuts, l'une des principales tâches de SCOSTEP est d'organiser et coordonner les programmes STP intéressants et approuvés par au moins 2 organismes adhérant à l'ICSU,

adopte le projet soumis sous le nom provisoire de IDSCS (International Decade of Solar Cycle Studies) destiné à l'étude des phénomènes spécifiques terre-soleil durant la totalité du 23e cycle solaire, avec un intérêt plus particulier pour les phases principales du cycle,

et recommande que SCOSTEP prenne toutes les mesures possibles pour organiser le projet pour la période 1997-2007.

Resolution No. B 17

*covering the ensemble of the resolution proposed by the Commissions by their Working Groups, or in the course of their collaborative work in the Symposia or Joint Discussions organised by the Commissions
portant sur les Résolutions de catégorie C proposées au Comité des Résolutions*

The XXIIInd General Assembly of the International Astronomical Union,

having complete confidence in its Commissions and in their working groups, especially with regard to the conclusions resulting from their collaborative work in Symposia and Joint Discussions,

Approves the resolutions submitted by those communities to the Resolutions Committee, the text of them follows.

Before the vote on Resolution B17, I shall read the titles of Resolutions C1 to C8, covered by Resolution B17:

- C1: On observations of the offset of the celestial pole and an empirical nutation model for practical use, proposed by the participants in JD n°19 organised by Commissions 4, 7, 19, 24 & 31 of the IAU.*
- C2: On the use of J.2000.0 equinox coordinates in announcements of Supernova discoveries, proposed by Commission 28 and its Working Group on Supernovae.*
- C3: On the preservation of Julian Day Numbers, proposed by Commissions 26, 27, 30, and 42 of the IAU.*

- C4: *On research and inventory of existing archives, proposed by Commission 41 of the IAU.*
- C5: *Concerning comet designations and names, proposed by Commission 20 of the IAU.*
- C6: *On the use of the 1976 system of Astronomical Constants, proposed by the Working Group on Astronomical Standards.*
- C7: *On the definition of J2000.0 and time scales, proposed by the Working Group on Astronomical Standards.*
- C8: *Concerning Space VLBI, proposed by Commission 40.*

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Accordant une entière confiance à ses Commissions et à leurs groupes de travail, notamment aux conclusions résultant de leurs travaux communs au sein de symposiums ou de discussions communes,

Souscrit aux résolutions soumises par ces groupes au Comité des Résolutions, résolutions et dont la liste est donnée ci-dessus (C1 à C8).

Resolution No. C 1

on observations of the offset of the celestial pole and the an empirical nutation model for practical use

participanrs in JD 19 between Commissions 4 (Ephemerides), 7 (Celestial Mechanics), 19 (Rotation of the Earth), 24 (Photographic Astrometry) and 31 (Time)

Recognising

1. that there are requirements to relate the J2000.0-celestial ephemeris pole (CEP) as defined by the 1980 IAU Theory of Nutation to the International Earth Rotation Service (IERS) CEP at J2000.0,
2. that the IERS provides accurate estimates of the offsets between these two poles,
3. that Very Long Baseline Interferometry (VLBI) and Lunar Laser Ranging (LLR) observations used by the IERS provide the most accurate data; and

Considering

1. that a long series of observational data is required to separate long-period nutations in longitude from precession, and long-period nutations in obliquity from obliquity rate, and to provide an improved estimate of precession, but
2. that there is an urgent need for an improved nutation numerical series for practical purposes;

Urges that observations of the offset of the celestial pole with respect to the pole defined by the 1980 IAU Theory of Nutation be made with the most precise techniques available including laser ranging to the Moon and very long baseline interferometry; and

Asks the International Earth Rotation Service to provide an empirical model for corrections to the 1980 IAU Theory of Nutation to be used for a priori estimates of the celestial ephemeris pole offsets.

Resolution No. C 2

*on the Use of J2000.0 Equinox Coordinates in announcements of SN Discoveries
Commission 28 (Galaxies) and its Working Group on Supernovae
La Commissions 28 (Galaxies) et le Groupe de Travail sur le Supernovae*

Recognising that most astronomical observations are now proposed, scheduled, and reported in the new FK5/J.2000.0 equinox coordinates,

Recommends that discoveries of new extragalactic supernovae, in so far as possible, report the position of their discoveries in these coordinates, and

Requests that IAU circulars and other official IAU publications record extragalactic supernova positions in J.2000.0 coordinates, beginning with SN 1995 A.

Resolution No. C 3

*on the Preservation of Julian Day Numbers
Commissions 26 (Double and Multiple Stars), 27 (Variable Stars), 30 (Radial Velocites) and 42 (Close Binary Stars)
Les Commissions 26 (Etoiles Doubles et Multiples), 27 (Etoiles variables), 30 (Vitesses Radials), et 42 (Etoiles Binaires Serrees)*

Recognising that a uniquely-defined zero point and scale of astronomical time underpin all current and archived data on variable phenomena, whether periodic, cyclical, or stochastic; and

Recognising also that variable-star phenomena account for a significant fraction of all such information; and

Recognising further that a unique time scale and zero point do exist with undiminished value in the Julian Day Numbers defined in 1582, which time system has in the 20th century already driven into disuse that of Nova Era Astronomica;

Noting that the Julian Day Numbers are already available for use in a shorter, truncated form, where needed;

Do deplore the introduction of the Modified Julian Day system on the supposed basis of economy and of global distribution of night-time and day-time observatories, especially since its close resemblance to Julian Day Numbers is very confusing to the users

Therefore recommend the rescinding of resolution n°4 of the XVth General Assembly of the IAU that established the Modified Julian Day system;

and recommend the continuing use of the Julian Day Numbers as the basis for performing, archiving, and exchanging all time-based calculations pertaining to astronomical phenomena with unambiguous continuity from the past into the indefinite future.

Resolution No. C 4
on Search for and Inventory of Existing Archives
Commission 41 (History of Astronomy)
La Commission 41 (Histoire de l'Astronomie)

Noting that Prof. Blaauw's recent "History of the IAU" shows the great value of astronomical archives,

Encourages a search for and inventory for all archives related to the history of the IAU, to be undertaken by members at their home institutions and other places and reported to Commission 41.

Resolution No. C 5
concerning Comet Designations and Names
Commission 20 (Positions and Motions of Minor Planets, Comets and Satellites)
La Commission 20 (Positions et Mouvements des petites Planètes, des Comètes et des Satellites)

1. Considering that

- a. there is essentially a 1:1 correspondence between the provisional (year/letter) and definitive (year/Roman numeral) designation systems for comets;
- b. the procedure for interpolating old discoveries of comets into the existing designation systems is unsatisfactory, particularly when orbit determinations are not available;
- c. the application of a new designation at each return of a periodic comet to perihelion is an unnecessary complication, particularly when the comet's recovery can be described as "routine", or for the rapidly increasing numbers of periodic comets that are followed all around their orbits; and
- d. there can be confusion as to whether a newly-discovered object is a comet or a minor planet,

Proposes to replace the present designation systems for comets with a system that closely resembles, but is not identical to, the designation systems for minor planets.

2. Specifically, it is resolved that the year/letter and year/Roman numeral systems be replaced by one in which each cometary discovery is given a designation consisting of the year of observation, the upper-case code letter identifying the half month of observation during that year according to the procedure used for minor planets, and a consecutive numeral to indicate the order of discovery announcement during that half month. Each new designation shall be supplied by the IAU Central Bureau for Astronomical Telegrams when the discovery is announced in one of its Circulars. For example, the third comet reported as discovered during the second half of February 1995 would be designated 1995 D3.
3. The nature of an object can further be indicated by an initial prefix. In particular, such prefixes should be applied in cases where comets possibly have been misdesignated as minor planets, or vice versa. If necessary, the prefix "A/" would precede a comet designation that actually refers to a minor planet (or asteroid). For comets the acceptable prefixes are "P/" for a periodic comet (defined to have a revolution period of less than 200 years or confirmed observations at more than one perihelion passage) and "C/" for a comet that is not periodic (in this sense), with the addition of "X/" for a comet for which a meaningful orbit can not be computed and "D/" for a periodic comet that no longer exists or is deemed to have disappeared.

Resolution No. C 5

concerning Comet Designations and Names

Commission 20 (Positions and Motions of Minor Planets, Comets and Satellites)

La Commission 20 (Positions et Mouvements des petites Planètes, des Comètes et des Satellites)

4. If a comet is observed to return (or have its periodicity established by observation through aphelion or from identifications), one "P/" (or "D/") shall be preceded by an official sequential number (e.g. 1P/Halley), to be maintained by the Minor Planet Center and published in the Minor Planet Circulars. Subsequent recoveries shall be acknowledged with further designations only when the predictions are particularly uncertain.
5. The practice of providing future predictions for the returns to perihelion of all periodic comets for which there is a reasonable chance for future observations will continue. While this currently means, for example, the publication of predictions for the comets for the year n in the batch of Minor Planet Circulars for May of the year n-3, the elements being for one 40-day date closest to perihelion passage, it is to be expected that this process will be supplemented -and perhaps eventually supplanted- by one that provides the orbital elements or "more" comets routinely at epochs 200 days apart, as in the case of minor planets.
6. In the case of a comet that has separated into discrete components, those components should be distinguished by appendix "-A", "-B", etc., to the designation (or to the "P/" or "D/" periodic comet number).
7. Noting that some redundancy of nonenclature is desirable, it is proposed to retain in general terms the tradition of naming comets for their discoverers. In this framework, a committee has been formed to establish more precise procedures to ensure fairness and simplicity.
8. It is proposed that comet names be announced in the IAU Circulars only following consultation between the Central Bureau for Astronomical Telegrams and the Commission 20 Committee on Names of Small Bodies .
9. Whereas the new designation system for comets implies the possibility of confusion (if incorrect spacing is used) with that for new planetary satellites, it is proposed to indicate satellites with the prefix "S/".
10. It is proposed that the new designation system for comets be introduced at the beginning of the year 1995. In the interest of avoiding confusion and maintaining continuity, Roman-numeral designation will be published in the Minor Planet Circular for pre-1995 comet discoveries/recoveries passing perihelion in 1993 and 1994, and new-style designations will be supplied for pre-1995 comets, together with lists of correlations with both the year/letter and the year/Roman numeral systems.

Resolution No. C 6

on the Use of the 1976 System of Astronomical Constants

The IAU Working Group on Astronomical Standards and was adopted by the members of the Commissions 4 (Ephemerides), 5 (Documentation and Astronomical Data), 8 (Positional Astronomy), 19 (Rotation of the Earth), 24 (Photographic Astrometry) and 31 (Time) participating in JD 14

Considering that

1. the present 1976 System of Astronomical Constants provides a stable standard for the consistent reduction of observations; but
2. the present system is inadequate for up-to-date, full, modern-day accuracy; and
3. IAU Resolution A4 (1991) explicitly introduces the theory of General Relativity as the theoretical background for the definition of the celestial space-time reference frames;

Recommend that

1. the present 1976 IAU System of Astronomical Constants be retained;
2. an IAU File of Current Best Estimates of Astronomical Constants be established in accordance with the report of the IAU WGAS;
3. a sub-working group be appointed by the IAU WGAS to provide definitions of the astronomical units, of the quantities linking these astronomical units to the units of the International System (SI), and of other astronomical quantities, compatible with the theory of General Relativity.

Resolution No. C 7

on the definition of J2000.0 and Time Scales

The IAU Working Group on Astronomical Standards and was adopted by the members of the Commissions 4 (Ephemerides), 5 (Documentation and Astronomical Data), 8 (Positional Astronomy), 19 (Rotation of the Earth), 24 (Photographic Astrometry) and 31 (Time) participating in JD 14

Considering that

1. the IAU has recommended the use of time-like arguments, barycentric Coordinate Time (TCB), Geocentric Coordinate Time (TCG) and Terrestrial Time (TT);
2. the accuracy of the determination of sidereal time has significantly improved in recent years; and
3. there is the need for a well-defined realization of a uniform time scale prior to the establishment of TAI;

Recommends that

1. the event (epoch) J2000.0 be defined at the geocenter and at the date 2000 January 1.5 TT = Julian date 2451545.0 TT;
2. the Julian century be defined as 36525 days of TT;

3. beginning with February 26, 1997 (date subject to change based on additional information), the relationship between Greenwich Mean Sidereal Time (GMST) and Greenwich Apparent Sidereal Time (GAST), shall be:

$$\text{GAST} = \text{GMST} + \text{Dpsi} \cos \text{eps0} + 0'' .00264 \sin \text{Omega} + 0.000063 \sin 2 \text{Omega}$$

where Dpsi is the nutation in longitude, eps0 is the mean obliquity of the ecliptic, and Omega is the longitude of the lunar node;

4. When possible new ephemerides should be developed in terms of the time-like arguments, ICB, ICG and a system of astronomical constants consistent with these relativistic time-like arguments;
5. TT is to be extended back prior to 1955 as a continuous time-like argument; and
6. when values of Delta T (=TT-UT) are given, the dependence upon the basis for the determination be specified, along with the means of properly correcting the values.

Resolution No. C 8
concerning Space VLBI
Commissions 40 (Radio Astronomy)
La Commission 40 (Radioastronomy)

Considering

- a. that Space VLBI is an effort to extend the interferometer baselines beyond the diameter of the Earth, and that the first successful experiment was done in 1986/87, demonstrating the feasibility and scientific potential,
- b. that success of such projects depends critically on the four basic elements: space antenna(s), satellite tracking and data link stations, ground observing telescopes and correlation and image processing facilities,0

Noting

- a. that two major projects, VSOP and RadioAstron, are in progress with planned launch dates of 1996 and 1997, respectively,
- b. that a large network of co-observing ground telescopes is required,
- c. that coordination with existing ground radio telescopes is being sought by the URSI Global VLBI Working Group,
- d. that considerable time on correlators and data processing facilities will be necessary for analysing the data produced,
- e. that a large investment is being made to arrange the satellite tracking and data link stations,

Urges every possible support for the Space Missions, especially for the co-observing ground telescopes and the operation of correlation and data processing facilities, including hardware for providing cross-compatibility between existing data acquisition systems.