

## 10 研究成果報告 (1999年に発表されたもの)

使用された天文台装置の略号は以下のとおりです。

略号	装置
P	65 cm 屈折望遠鏡
D	ドームレス太陽望遠鏡
K	花山画像解析システム
F	フレアー監視望遠鏡
O	その他

### 10.1 出版

- (1) P Akabane, T., Nakakushi, T., Iwasaki, K., and Larson, S. M.,  
Mars: The opacity of the equatorial cloud belt in 1997 and 1999,  
Proc. 32nd ISAS Lunar Plan. Symp. 192-195 (1999).
- (2) P Nakakushi, T., Akabane, T., Iwasaki, K., and Larson, S. M.,  
The Latest Analyses of the Optical Thickness of Equatorial Clouds: 1997 and 1999  
Observations,  
Proc. 32nd ISAS Lunar Plan. Symp. 196-199 (1999).
- (3) P Nakakushi, T., Akabane, T., Iwasaki, K. and Larson, S. M.,  
The Blue Clearing at Syrtis Major and Its Relation to Equatorial Clouds: 1997 and 1999  
Observations  
The Fifth International Conference on Mars, #6097. LPI Contribution No.972, Lunar  
and Planetary Institute, Houston(CD-ROM).

以下 (4) から (13) まで 太陽研究会「21世紀の太陽研究の方向を探る」集録

- (4) D 高津 祐通  
RTFS2の開発と水平速度場の解析
- (5) D 吉村 圭司  
粒状斑模様を用いた局所相関追跡法における Systematic Error について
- (6) D 桜井 隆 (国立天文台)、馬場 直志 (北大)、三浦 則明 (北見工大)  
太陽の高分解能撮像と画像改良技法
- (7) D 石井 貴子  
活動領域における浮上磁場構造の決定に必要な観測
- (8) K 武田 秋  
日食観測からみたコロナの温度・密度構造と今後の観測
- (9) F 森本 太郎  
H $\alpha$  フィラメント消失とようこう SXT イベント
- (10) O 真柄 哲也  
CME 理論モデルの現状と今後のアプローチ

- (11) D 上野 悟  
ドームレス太陽望遠鏡・マグネトグラフ計画
- (12) D 川上 新吾 (大阪科学館)、當村 一朗 (大阪府立高専)  
若い活動領域における磁場・速度場・明るさの関係
- (13) D 當村 一朗 (大阪府立高専)、井田 民男 (熊野高専)、北井 礼三郎  
DST と高速度カメラによる太陽撮像の試み
- (14) O Singh, J., Ichimoto, K., Imai, H., Sakurai, T., and Takeda, A.,  
Spectroscopic Studies of the Solar Corona I. Spatial Variations in Line Parameters of  
Green and Red Coronal Lines,  
PASJ, 51, 269.
- (15) O Magara, T., and Shibata, K.,  
Evolution of Eruptive Flares. II. The Occurrence of the Locally Enhanced Resistivity in  
the Preflare Phase,  
ApJ, 514, 456.
- (16) O Kudoh, T., and Shibata, K.,  
Alfven Wave Model of Spicules and Coronal Heating,  
ApJ, 514, 493.
- (17) O Chou, W., Tajima, T., Matsumoto, R., and Shibata, K.,  
Dynamics of Local Isolated Magnetic Flux Tubes in a Rapidly Rotating Stellar  
Atmosphere,  
PASJ, 51, 103.
- (18) O Tanuma, S., Yokoyama, T., Kudoh, T., Matsumoto, R., Shibata, K., and Makishima,  
K.,  
Magnetic Reconnection as the Origin of Galactic Ridge X-ray Emission,  
PASJ, 51, 161.
- (19) O Shimojo, M., and Shibata, K.,  
Occurrence Rate of Microflares in an X-ray Bright Point within an Active Region,  
ApJ, 516, 934.
- (20) O Koide, S., Shibata, K., and Kudoh, T.,  
Relativistic Jet Formation from Black Hole Magnetized Accretion Disks: Method, Tests,  
and Applications of General Relativistic Magnetohydrodynamic Numerical Code,  
ApJ, 522, 727.
- (21) O Kundu, M. R., Nindos, A., Raulin, J. -P., Shibasaki, K., White, S. M., Nitta, N.,  
Shibata, K., and Shimojo, M.,  
A Microwave Study of Coronal Ejecta,  
ApJ, 520, 391.

- (22) O Kudoh, T., Matsumoto, R., and Shibata, K.,  
Numerical MHD Simulation of Astrophysical Problems by Using CIP-MOCCT Method,  
Computational Fluid Dynamics Journal, vol. 8, 56-68 (1999).
- (23) O Shibata, K., and Yokoyama, T.,  
Origin of Universal Correlation between the Flare Temperature and the Emission Measure  
for Solar and Stellar Flares,  
ApJ, 526, L49.
- (24) O Shibata, K.,  
Solar Flares, Jets, and Magnetic Helicity, in Magnetic Helicity in Space and Laboratory  
Plasmas,  
M. Brown, R. Canfield, A. Pevtsov (eds.), AGU Monograph 111, AGU, pp. 229-238, 1999  
(invited paper).
- 以下 (25) から (36) まで in "Numerical Astrophysics", S. M. Miyama et al. (eds.), Kluwer  
Academic Pub.
- (25) O Shibata, K., and Yokoyama, T.  
MHD Simulations of Magnetic Reconnection and Solar Flares
- (26) O Tonooka, H., Matsumoto, R., Chou, W., Tajima, T., and Shibata, K.  
Three-Dimensional MHD Simulations of the Emergence of Twisted Magnetic Flux Tubes  
in the Solar Atmosphere
- (27) O Magara, T., and Shibata, K.  
The 3-Dimensional Numerical Simulation of Solar Flares
- (28) O Yokoyama, T., and Shibata, K.  
MHD Simulation of a Solar Flare Based on a Magnetic Reconnection Model
- (29) O Matsuzaki, T., Shibata, K., Tajima, T., and Matsumoto, R.,  
Magnetohydrodynamic Simulations of High-Beta Disks and Low-Beta Disks
- (30) O Kuwabara, A., Matsumoto, R., Shibata, K., and Chou, W.  
Dynamics of a Magnetic Flux Tube in Differentially Rotating Disks
- (31) O Hayashi, M., Shibata, K., and Matsumoto, R.  
Magnetohydrodynamic Simulations of Recurrent X-Ray Flares in Protostars
- (32) O Kuwabara, T., Matsumoto, R., and Shibata, K.  
Resistive MHD Simulations of Magnetically Driven Mass Accretion in Active Galactic  
Nuclei
- (33) O Koide, S., Shibata, K., and Kudoh, T.  
General Relativistic Jet Formation from Black-Hole Magnetized Accretion Disks
- (34) O Kato, S., Kudoh, T., and Shibata, K.  
MHD Simulation of Active Galactic Nuclei Jets

- (35) O Kudoh, T., Shibata, K., and Matsumoto, R.  
2. 5D Nonsteady MHD Simulations of Magnetically Driven Jets from Accretion Disks by Using the CIP-MOCCT Method
- (36) O Tanuma, S., Yokoyama, T., Kudoh, T., and Shibata, K.  
Two-Dimensional Numerical MHD Simulation of Magnetic Reconnection in Galaxy
- (37) O Kudoh, T., Matsumoto, R., and Shibata, K.  
Magnetically Driven Jets from Accretion Disks: The Effect of Magnetorotational Instability  
Adv. Space Res. vol. 23, pp 1101-1104, 1999.
- (38) O Takeuchi, T.T., Hirashita, H., Ohta, K., Hattori, T.G., Ishii, T.T., and Shibai, H.,  
IRIS Far-Infrared Galaxy Survey : Expected Number Count, Redshift, and Perspective,  
PASP, 111, 288.
- (39) O Takeuchi, T.T., Tomita, A., Nakanishi, K., Ishii, T.T., Iwata, I. and Saito, M.,  
Photometric Properties of Kiso Ultraviolet-Excess Galaxies in the Lynx-Ursa Major Region,  
ApJS, 121, 445.
- (40) O Takeuchi, T.T., Hirashita, H., Ohta, K., Ishii, T. T., Yoshikawa, K., and Shibai, H.,  
Simulation of the IRIS Far-infrared Survey : Guide for Infrared Galaxy Number Counts,  
ISAS Report, 673, (1999).
- (41) F Hori, K., Kosugi, T., Fujiki, K., Koshiishi, H., and Shibasaki, K.,  
Microwave Observation of Eruptive Solar Events with and without Flare Activity,  
ApJ, 532, 2000.
- (42) O Magara, T., and Shibata, K.,  
Evolution of Eruptive Falres II. The Occurrence of Locally Enhanced Resisitivity,  
ApJ, 514, 456.
- (43) D Magara, T., and Kitai, R.,  
Photospheric and Chromospheric Gas Motions around a Dark Filament,  
ApJ, 524, 469.
- (44) F Kitai, R., Kurokawa, H., Funakoshi, Y., Ishiura, K., and Shinkawa, T.,  
An Observational Search for Giant Cells in the Sun,  
Adv. Space. Res., Vol 24, pp. 237-239, (1999).
- (45) K Takeda, A., Kurokawa, H., Kitai, R., and Ishiura, K.,  
Density Structure of the Coronal Loops Derived from the 1991 Total Eclipse Observation,  
ASP Conference Series, Proc. of International Symposium, The Last Solar Total Eclipse  
in the Millennium, submitted.

- (46) **K** Takeda, A., Kurokawa, H., Kitai, R., and Ishiura, K.,  
On the Properties of the Green and Red Coronal Loops and Their Contribution to the K-Corona,  
PASJ submitted.
- (47) **O** Shibata, K.,  
Evidence of Magnetic Reconnection in Solar Flares and a Unified Model of Flares,  
Astrophys. and Space Science, 264, 129.
- (48) **D** Ishii, T.T., Kurokawa, H., and Takeuchi, T.T.,  
Emergence of Twisted Magnetic Flux Bundles and Flare Activity in a Large Active Region NOAA 4201,  
PASJ, in press.
- (49) **O** Takeuchi, T.T., Ishii, T. T., Hirashita, H., Yoshikawa, K., and Mazmine, K.,  
Exploring Galaxy Evolution from Infrared Galaxy Number Count,  
in Star Formation 1999, 49, (1999).
- (50) **O** Ishii, T. T. , Takeuchi, T.T., Hirashita, H., and Yoshikawa, K.,  
Cosmic Star Formation History Required from Infrared Galaxy Number Count : Future Prospect for Infrared Imaging Surveyor (IRIS),  
in Star Formation from the Small to the Large Scale, 33rd ESLAB Symposium, SP-445 to appear in 1999.
- (51) **O** Takeuchi, T. T., Ishii, T. T., and Yoshikawa, K.,  
Tests of Statistical Methods for Estimating Galaxy Luminosity Function and Applications to the Hubble Deep Field : Implication to the Cosmic Star Formation,  
in Star Formation from the Small to the Large Scale, 33rd ESLAB Symposium, SP-445 to appear in 1999.
- (52) **O** Takeuchi, T. T., Hirashita, H., Ishii, T. T., and Yoshikawa, K.,  
Cosmic Star Formation History Inferred from Optical and Far Infrared Observations,  
in The Birth and Evolution of the Universe, 4th RESCEU International Symposium, in press.
- (53) **O** Shibata, K.,  
Reconnection Models of Flares (invited talk),  
in Solar Physics with Radio Observations, Proc. Nobeyama Symposium 1998, T.S. Bastian, N. Gopalswamy, K. Shibasaki(eds.) NRO Reports No.479, 381-389, (1999).
- (54) **O** Shibata, K., and Kudoh, T.,  
Formation and Collimation of Jets by Magnetic Forces (invited talk),  
in Star Formation 1999, Proc. of Star Formation 1999, T. Nakamoto(ed.), Nobeyama Radio Observatory, p263-268,(1999).
- (55) **O** Matsumoto, R., and Shibata, K.,  
Global three-dimensional MHD simulations of accretion disks and jet formation in AGN,  
Adv. Space Res. vol. 23, pp 1109-1112, (1999).

- (56) O Kuwabara, T., Matsumoto, R., and Shibata, K,  
Magneto hydrodynamic simulations of magnetically driven mass accretion in active galactic nuclei,  
Adv. Space Res. vol. 23, pp 1105-1108, (1999).
- (57) O Tanuma, S., Yokoyama, T., Kudoh, T., and Shibata, K.,  
Numerical simulations of magnetic reconnection triggered by a supernova,  
Astronomische Nachrichten, 320, 341.
- (58) O Kudoh, T., Aoki, S., Koide, S., and Shibata, K.,  
Are blazar jets magnetically driven outflows?  
Astronomische Nachrichten, 320, 311.

## 10.2 研究会報告

岡本教授退官記念研究会 (三鷹) 2月

- (1) O 柴田一成  
Various MHD Outflow Phenomena in the Sun and Their Relation to Astrophysical Jets  
(invited talk)

天文情報処理研究会「パソコンベースの天文ツール」(和歌山) 3月

- (2) D 高津裕通  
Linux 上で GNU C++ を使った太陽画像解析

Solar B meeting (相模原) 3月

- (3) O 柴田一成  
Comments on Solar B Science (invited talk)

ASCA symposium (八王子) 3月

- (4) O Shibata, K. and Yokoyama, T.  
Origin of Universal Correlation between Flare Temperature and Emission Measure

日本天文学会春季年会 (京都) 3月

- (5) D 高津裕通、北井礼三郎、船越康宏、真柄哲也  
活動領域 NOAA8323 における光球面水平方向速度場

- (6) K 武田 秋、黒河宏企、北井礼三郎、石浦清美  
輝線コロナループ (200 万度と 100 万度) の特性比較

- (7) O 石井 貴子  
How Many Flares Occur in an Active Region? : Estimation of Flare Activity Level

- (8) D 真柄哲也、北井礼三郎  
Photospheric and Chromospheric Motions around A Dark Filament

- (9) O 鈴木美好 (津高校)、久保田諄 (大阪経済大)  
サイクル 22 における黒点相対数の南北非対称
- (10) K Herdiwijaya, D., 牧田貢 (大阪学院大)  
The Tilt Angle Distribution of Individual Sunspot Proper Motions
- (11) O 久保田諄 (大阪経済大)、鈴木美好 (津高校)、時政典孝 (西はりま天文台)  
サイクル 21、22 期間中の H $\alpha$  フレア統計
- (12) D 森本太郎、黒河宏企、上野悟、井上勝博、卜部泰三、斎藤祥行  
彩層微細構造と光球、彩層振動との相関について
- (13) F 森本太郎、黒河宏企、A. McAllister(HAO)  
H $\alpha$  フィラメント消失とプロミネンス爆発の随伴活動現象への関わり
- (14) D Kurokawa, H. and Sano, S.  
Two Kinds of Downward-moving Features of H $\alpha$  Surges as an Evidence of Magnetic Field Reconnection
- (15) D 北井礼三郎  
活動領域内微小黒点の消長とサージ活動
- (16) D 上野悟、船越康宏、北井礼三郎、黒河宏企  
飛騨 DST マグネットグラフ — エンジニアリング・ファーストライト —
- (17) O 末松芳法、今井英授、吉村圭司、石垣剛、上野悟、林忠史、大谷浩  
太陽 3 次元同時分光装置の開発
- (18) O 竹内 努、吉川 耕司、石井 貴子、太田 耕司、中西 康一郎  
Reality and Reliability of the Evolution of the Galaxy Luminosity Function : Statistical Experiment

**Gamma-ray burst meeting (埼玉) 6 月**

- (19) O 柴田一成  
MHD ジェットとガンマ線バースト (招待講演)

**地球惑星合同学会 (代々木) 6 月**

- (20) O 柴田一成  
原始星フレア (招待講演)

**International Meeting on "Star Formation" (名古屋) 6 月**

- (21) O 柴田一成  
Formation and Collimation of Jets by Magnetic Forces (invited talk)
- (22) O Takeuchi, T. T., Ishii, T. T., Hirashita, H., Yoshikawa, K., and Mazmine, K.  
Exploring Galaxy Evolution from Infrared Galaxy Number Count

**IAU symposium 195 "Highly Energetic Physical Processes and Mechanism  
for Emission from Astrophysical Plasmas" (アメリカ) 7月**

(23) O Shibata, K., Koide, S., Kudoh, T., and Aoki, S.

General Relativistic MHD Simulations of Jets from Accretion Disks around a Black Hole  
(invited talk)

**研究会「プラズマにおける構造形成と機能」(土岐) 7月**

(24) O 柴田一成

太陽フレアにおける磁気リコネクション

**The 5th International Conference on Mars (アメリカ) 7月**

(25) P Nakakushi, T., Akabane, T., Iwasaki, K., and Larson, S. M.

The Blue Clearing at Syrtis Major and Its Relation to Equatorial Clouds: 1997 and 1999  
Observations

**野辺山多波長データ解析研究会(野辺山) 7月**

(26) F Yokoyama, T., Akita, K., Morimoto, T., Inoue, K., and Newmark, J

Clear Evidence of Reconnection Inflow of a Solar Flare

**第32回月惑星シンポジウム(相模原) 8月**

(27) P 赤羽徳英、中串孝志、岩崎恭輔(京都学園大)、Steve Larson(LPL, Univ. of Arizona)

火星赤道帯の雲の光学的厚さとその時間変化

(28) P 中串孝志、赤羽徳英、岩崎恭輔(京都学園大)、S. M. Larson(LPL, Univ. of Arizona)

The Latest Analyses of the Optical Thickness of Equatorial Clouds: 1997 and 1999  
Observations

**International Symposium, The Last Solar Total Eclipse in the Millennium**

(トルコ) 8月

(29) K Takeda, A., Kurokawa, H., Kitai, R., and Ishiura, K.

Density Structure of the Coronal Loops Derived from the 1991 Total Eclipse Observation

**日本天文学会秋季年会(福岡) 10月**

(30) P 中串孝志、赤羽徳英、岩崎恭輔(京都学園大)、S. M. Larson (LPL, Univ. of Arizona)

Blue Clearing 現象と Martian Equatorial Clouds

(31) D 高津裕通、北井礼三郎、船越康宏

LCTM を用いた活動領域における対流構造の解析

(32) O 石井 貴子、黒河 宏企

Magnetic flux の総量と flare activity level との相関について

(33) D 吉村 圭司

局所相関追跡法の誤差について考えました。



- (34) O 竹内 努、石井 貴子、平下 博之、吉川 耕司、松峰 公二  
Galaxy Number Counts from Infrared to Radio Wavelength: Implication and Optimal Strategy for Future Surveys
- (35) O 真柄哲也  
Expansion process of emerging flux tube
- (36) D 北井礼三郎  
サージ活動における浮上磁場と光球流れの場
- (37) O Suematsu, Y.(NAOJ), Yoshimura, K., Ohtani, H.(Kyoto Univ), Balasubramaniam, K. S., Hegwer, S. (NSO), Smaldone, L.A.(Univ. Naples)  
Simultaneous 2-D Spatial Spectra of the Sun Using a Microlens-Array Spectrograph
- (38) F 森本太郎、黒河宏企  
フィラメント消失、プロミネンス爆発における特徴的活動現象について
- (39) F 堀久仁子 (国立天文台)、秋山幸子 (総研大)、黒河宏企、森本太郎  
太陽コロナで発生した巨大竜巻をマイクロ波で追う
- (40) O 井上勝博、柴田一成  
X-ray Jet の空間的 X 線強度分布の起源

太陽望遠鏡ワークショップ (和歌山) 10 月

- (41) D 上野悟  
太陽スペクトルから分かること

33rd ESLAB Symposium,

Star Formation from the Small to the Large Scale (オランダ) 11 月

- (42) O Ishii, T. T. , Takeuchi, T.T., Hirashita, H., and Yoshikawa, K.  
Cosmic Star Formation History Required from Infrared Galaxy Number Count : Future Prospect for Infrared Imaging Surveyor (IRIS)
- (43) O Takeuchi, T.T. , Ishii, T. T. , Yoshikawa, K.  
Cosmic Star Formation History Required from Infrared Galaxy Number Count : Tests of Statistical Methods for Estimating Galaxy Luminosity Function and Applications to the Hubble Deep Field : Implication to the Cosmic Star Formation

The Birth and Evolution of the Universe,

4th RESCEU International Symposium (東京) 11 月

- (44) O Takeuchi, T. T., Hirashita, H., Ishii, T. T., and Yoshikawa, K.  
Cosmic Star Formation History Inferred from Optical and Far Infrared Observations

## Yohkoh 8th anniversary symposium

### ”Explosive Phenomena in Solar and Space Plasmas”(相模原) 12月

(45) O 柴田一成

Unified view of flares and CMEs (invited talk)

(46) O Chen P. F. and Shibata, K.

A Preliminary Simulation of A Trigger Mechanism for CMEs

## 10.3 天文台出版物

### CONTRIBUTIONS FROM THE KWASAN AND HIDA OBSERVATORIES

No. 341 Takeuchi, T.T., Hirashita, H., Ohta, K., Hattori, T.G., Ishii, T.T. and Shibai, H.,

The IRIS Far-Infrared Galaxy Survey: Expected Number Count, Redshift, and Perspective,

PASP, 111, 288-305.

No. 342 Yoshimura, K., and Kurokawa, H.,

Causal Relations between H $\alpha$  Loop Emergences and Soft X-ray Brightengins,

ApJ, 517, 964-976.

No. 343 Magara, T., and Shibata, K.,

Evolutions of Eruptive Flares II. The Occurrence of Locally Enhanced Resistivity,

ApJ, 514, 456-471.

No. 344 Shibata, K.,

Solar Flares, Jets, and Helicity,

Magnetic Helicity in Space and Laboratory Plasmas, Geophysical monograph III, AGU(1999).

No. 345 Shibata, K.,

Evidence of Magnetic Reconnection in Solar Flares and a Unified model of Flares,

Astrophys. and Space Science, 264, 129-144.

No. 346 Shibata, K., and Kudoh, T.,

Formation and Collimation of Jets by magnetic Forces,

Proc Star Formation 1999 (ed.) T.Nakamoto, Nobeyama radio Obs., pp263-268 (1999).

No. 347 Shibata, K., and Yokoyama, T.,

Origin of Universal Correlation between the Flare Temperature and the Emission Measure for Solar and Stellar Flares,

ApJ, 526, L49-L52.

No. 348 Shibata, K.,

Reconnection models of Flares,

in Solar physics with Radio Observations, Proc. Nobeyama Symposium 1998, NRO Report No, 479, pp 381-389(1999).