



海洋バイオシステム研究センター

1. 東南アジア赤道地域沿岸性蔓脚類の生物地理とその成立過程の研究 (マレーシア・ボルネオ島の現地調査)
2. 海洋バイオシステム研究センター/教授/山口寿之
3. インドネシア/国立 Jenderal Soedirman University/R.E. Prabowo 講師、インドネシア/国立 Riau University/Ida Ayu Puspasari 博士、ベトナム/ベトナム国立大学/P.N Hong 教授、アメリカ/ Scripps Institution of Oceanography/W.A Newman 教授、タイ/国立 Songkura Universtiy/Saowapa Angsupanich 助教授、バンクラディッシュ/国立 Dhaka University/Rowshan Ara Begum 助教授
4. 平成 15 年度 (1998 から継続中)
5. インド洋と太平洋の境をなす東南アジア地域の蔓脚類の種構成、生物地理、そしてその成立過程の研究を行っています。
6. 科学研究費補助金 国際学術研究 (海外学術研究) 基盤研究 A2 (平成 11~13 年度)、基盤研究 B1 (平成 14~17 年度) その他。
7. Romanus Edy Prabowo and T. Yamaguchi (2005) A new mangrove barnacle of the *Balanus amphitrite* complex from Sumbawa Island, Indonesia. *Journal of Marine Biological Association, U.K.*, 85:929-936.
8. なし

1. 深海熱水噴出孔に生息する原始的な蔓脚類の系統進化、生物地理、起源に関する研究
2. 海洋バイオシステム研究センター/教授/山口寿之
3. アメリカ/Scripps Institution of Oceanography/W.A Newman 教授、ニュージーランド/オークランド工科大学/John S. Buckeridge 教授
4. 平成 15 年度 (1988 年から継続中)
5. 深海熱水噴出孔に原始的な生物群集が 1978 年に発見され、その中のフジツボ類の研究を行っている。東太平洋、日本近海の北西太平洋、南西太平洋、インド洋にそれらの原始的なフジツボ類が発見され、系統進化、生物地理、起源に関する研究が中心となる。
6. 住友財団研究費、東京地学協会研究助成金、文部科学省創造科学研究、科学研究費補助金 国際学術研究 (海外学術研究) 基盤研究 B2 (平成 15~17 年度) など。
7. Yamaguchi, T., W.A. Newman, and J. Hashimoto (2004) A hydrothermal, cold-seep barnacle (Cirripedia: Neolepadinae) and the age of the vent/seep fauna. *Journal of Marine Biological Association of U.K.*, 84: 111-120.
8. なし

1. 蔓脚類の分子系統進化の研究
2. 海洋バイオシステム研究センター/教授/山口寿之
3. インドネシア/国立 Jenderal Soedirman University/R.E. Prabowo 講師、インドネシア/国立 Riau University/Ida Ayu Puspasari 博士、バンクラディッシュ/国立 Duhka University/Rowshan Ara Begum 助教授
4. 平成 15 年度 (1996 年から継続中)
5. DNA の塩基配列を求めて分類群間の系統関係を明らかにする研究。
6. 平成 6-8 年度科学研究費補助金基盤研究 (A-2) 代表、課題番号: 06404001、平成 9-11 年度、基盤研究 (C-2)代表、課題番号: 09839007、平成 11-13 年度、基盤研究 (A-2) (学術調査)、代表、課題番号: 11691172、平成 13-17、基盤研究 (B-2) 代表、課題番号: 14340154
7. Rowshan Ara Begum, T. Yamaguchi, and S. Watabe (2004) Molecular phylogeny of thoracican barnacles based on the mitochondrial 12S and 16S rRNA genes. *Sessile Organisms*, 21 (2): 47-54.  
Rowshan Ara Begum, K. Tsuchida, T. Yamaguchi, M. Nishida and S. Watabe (印刷中) Complete mitochondrial genome of the sessile barnacle *Tetraclita japonica*. *Special MBC 2003 Proceedings Issue of Marine Techonology*,
8. なし

1. 地殻活動に関連する電磁気現象に関する研究
2. 海洋バイオシステム研究センター/助教授/服部克巳
3. Russia / Institute of Physics of the Earth / Dr. Oleg Molchanov  
Russia / Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation  
(IZMIRAN) / Dr. Yuri Kopytenko  
Russia / Geophysical Service Kamchatka Department / Dr. Eviginii Gordeev  
Ukraine / Lviv Center of Space Research / Dr. Varely Korepanov
4. 平成 10 年度～
5. 地震に先行する電磁気現象のうち ULF 帯の磁場変動に注目し、その観測のための機材の開発、観測点の設置、データ解析を行い、その物理機構を解明し、地震活動を監視・予測するための手法について研究を行う。

6. 理化学研究所 (2002 年まで)  
 科研費 (C) (2002—2004 年)  
 科研費 (C) (2004—2006 年)
7. Yu. A. Kopytenko, V. S. Ismaguilov, K. Hattori, and M. Hayakawa, Determination of hearth position of forthcoming strong EQ using gradients and phase velocities of ULF geomagnetic disturbances, Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics, pp. 166-169, 15-17 March, 2005, Chofu, Tokyo
- Kopytenko Yu.A., Ismaguilov V.S., Hattori K., Hayakawa M., Gradients and Phase Velocities of ULF magnetic disturbances ( $F=0.1-0.4\text{Hz}$ ) before and during strong earthquakes inf 2003 year at Bosso Peninsula (Japan), 2004 Asia-Pacific Radio Science Conference Proceedings, p. 545, August 24-27, 2004, (Qingdao, China).
- Molchanov, O.A.; Schekotov, A.Ju.; Hattori, K.; Solovieva, M.S.; Fedorov, E.N.; Chebrov, V.; Saltikov, D.; Hayakawa, M., Near-seismic effects in ULF fields and seismo-acoustic emission : statistics and explanation, European Geosciences Union 1<sup>st</sup> General Assembly (CD-ROM), April 25-30, 2004, Nice, France
- Gotoh, K., Hayakawa, M., Smirnova, N., and Hattori, K., Fractal analysis of seismogenic ULF emissions, Physics and Chemistry of the Earth, 29, 419-424, 2004.
- M. Hayakawa, K. Hattori, A. P. Nickolaenko, and L. M. Rabinowicz, Relation between the energy of earthquake swarm and the Hurst exponent of random variations of the geomagnetic field, Physics and Chemistry of the Earth, 29, 379-387, 2004.
- Hattori, K., Takahashi, I., Yoshino, C., Isezaki, N., Iwasaki, H., Harada, M., Kawabata, K., Kopytenko, E., Kopytenko, Y., Maltsev, P., Korepanov, V., Molchanov, O., Hayakawa, M., Noda, Y., Nagao, T., Uyeda, S., ULF geomagnetic field measurements in Japan and some recent results associated with Iwateken Nairiku Hokubu Earthquake in 1998, Physics and Chemistry of the Earth., 29, 481-494, 2004.
- Ismaguilov, V., Kopytenko, Y., Hattori, K., and Hayakawa, M., 2003: Variations of phase velocity and gradient values of ULF geomagnetic disturbances connected with the Izu strong earthquake, Natural Hazards and Earth System Sciences, 3, 211-215, 2003.
- Kopytenko, Y., Ismaguilov, V., Molchanov, O., Kopytenko, E., Voronov, P., Hattori, K., Voronov, P., Hayakawa M., Zaitsev, D., Investigation of ULF magnetic disturbances in Japan during acive seismic period, Journal of Atmospheric Electricity, 22, 3, 207-215, 2002.
- Uyeda, S., Hayakawa, M., Nagao, T., Molchanov, O., Hattori, K., Orihara, Y., Gotoh, K., Akinaga, Y., Tanaka, H., Electric and Magnetic phenomena observed before the volcano-seismic activity 2000 in the Izu islands region, Japan, Proceedings of the US National Academy of Science, 99, 7352-7355, 2002.
- Gorbatikov, A., Molchanov, O., Hayakawa, Uyeda, S., M., Hattori, K., Nagao, T., Tanaka, H., Nikolaev V., Maltsev, P., Acoustic emission possibly related to earthquakes, observed at Matsushiro, Japan and its implications, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 1-10, Terrapub, 2002.
- Kopytenko, Y., Ismaguilov, V., Hattori, K., Voronov, P., Hayakawa M., Molchanov, O., Kopytenko, E., Zaitsev, D., Monitoring of the ULF Electromagnetic disturbances at the station network before EQ in seismic zones of Izu and Chiba Peninsulas, Seismo Electromagnetics: Lithosphere-Atmosphere- Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 11-18, Terrapub, 2002.
- Yagova, N., Yumoto, K., Pilipenko, V., Hattori, K., Nagao, T., Saita, K., Local variations of geomagnetic ULF noises and their relation to seismic activity, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 45-48, Terrapub, 2002.
- Uyeda, S., Nagao, T., Hattori, K., Noda, Y., Hayakawa, M., Miyaki, K., Molchanov, O., Gladychyev, V., Baransky, L., Schekotov, A., Belyaev, G., Fedorov, E., Pokhotelov, O., Andreevsky, S., Rozhnoi, A., Khabazin, Y., Gorbatikov, A., Gordeev, E., Chevrov, V., Lutikov, A., Yunga, S., Kasarev, G., Surkov, V., Russian-Japanese complex geophysical observatory in Kamchatka for monitoring of phenomena-connected with seismic activity, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 413-420, Terrapub, 2002.
- Gladychyev, V., Baransky, L., Schekotov, A., G., Fedorov, E., Pokhotelov, O., Andreevsky, S., Rozhnoi, A., Khabazin, Belyaev, G., Gorbatikov, A., Gordeev, E., Chevrov, V., Sinitin, V., Gorbatikov, A., Gordeev, E., Chevrov, V., Molchanov, O., Hayakawa, M., Uyeda, S., Nagao, T., Hattori, K., Noda, Y., "Some preliminary results of seismo-electromagnetic research at complex geophysical observatory, Kamchatka, Seismo Electromagnetics: Lithosphere-Atmosphere-Ionosphere coupling, edited by M. Hayakawa and O. Molchanov, 413-420, Terrapub, 2002.
- Ismaguilov, V., Kopytenko Y., Hattori, K., Voronov, M., Molchanov, O., Hayakawa, M., ULF magnetic emissions connected with under sea bottom earthquakes, Journal of Natural Hazards and Earth System Science, 1, 23-31, 2001.

8. 本研究に関連して理化学研究所と宇宙開発事業団の共催で以下のワークショップとシンポジウムが開催された。

RIKEN/NASADA Workshop on Seismo-ULF emissions, December 1998, Tokyo.

RIKEN/NASADA Symposium on the Recent Aspects of Electromagnetic Variations Related with Earthquakes, December 1999, Wako.

なお、平成 12 年 9 月には宇宙開発事業団主催で International Workshop on Seismo Electromagnetics, 2000 of NASDA, September 2000, Tokyo が開催された。

平成 10 年 9 月：カムチャツカ半島パラトゥンカに地球電磁気（地電流）観測点設置

平成 10 年 11 月：ロシア・サンクトペテルブルグ IZMIRAN およびモスクワ Institute of Physics of the Earth にてそれぞれ Dr. Yuri Kopytenko, および Dr. Oleg Molchanov らと研究打ち合わせ。

平成 11 年 9 月：パラトゥンカ観測点保守点検

平成 12 年 8 月：カムチャツカ観測点保守点検

平成 13 年 11 月：Pavel Maltsev 氏(Lviv Center of Space Research, Ukraine)研究打ち合わせのため千葉大滞在。

平成 14 年 7～8 月：Dr. Vareli Ismaguilov, Andrei Radilov 氏(IZMIRAN, Russia)が研究打ち合わせのため千葉大滞在。

平成 16 年 12 月：Pavel Maltsev 氏(Lviv Center of Space Research, Ukraine)が研究打ち合わせのため千葉大訪問。

平成 17 年 3 月：Dr. Yuri Kopytenko(IZMIRAN, Russia)および Dr. Oleg Molchanov (Institute of Physics of the Earth) らと研究打ち合わせ。

1. 台湾における電磁気学的アプローチによる地震活動監視に関する研究
2. 海洋バイオシステム研究センター／助教授／服部克巳
3. 台湾国立中央大学／教授／劉正彦  
台湾国立中正大学／教授／謝秋秀  
大漢技術学院／教授／許華杞
4. 2001～
5. 地震に先行する電磁気現象の物理機構を解明し、台湾で地震活動の電磁気学的な監視および短期的な予測を実現する。
6. 理化学研究所（2002 年まで）  
交流協会（2004）
7. Katsumi Hattori, ULF geomagnetic changes associated with large earthquakes, *Terrestrial, Atmospheric and Oceanic Sciences*, Vol.15, No.3, 329-360, 2004  
Masashi Kamogawa, Jann-Yenq Liu, Hironobu Fujiwara, Yu-Jung Chuo, Yi-Ben Tsai, Katsumi Hattori, Toshiyasu Nagao, Seiya Uyeda, and Yoshi-Hiko Ohtsuki, *Atmospheric field variations before the March 31, 2002*  
M6.8 earthquake in Taiwan, *Terrestrial, Atmospheric and Oceanic Sciences*, Vol.15, 397-412, September 2004.  
Hattori, K., Takahashi, I., Yoshino, C., Nagao, T., Liu, J.Y., Shieh, C.F., ULF Geomagnetic and Geopotential Measurement at Chia-Yi, Taiwan, *Journal of Atmospheric Electricity*, 22, 3, 217-222, 2002.  
K. Hattori, Y. Akinaga, K. Gotoh, C. Yoshino, Y. Kopytenko, M. Hayakawa, K. Yumoto, T. Nagao, S. Uyeda, J. Y. Liu, C. H. Shieh, ULF Geomagnetic Anomalies Associated with Earthquakes and Observations in Taiwan, 2002 International Workshop on Earthquake Precursor iSTEP \_integrated Search for Taiwan Earthquake Precursors, p.96—97, 2002.  
Y. Akinaga, M. Hayakawa, J.Y. Liu, K. Yumoto, K. Hattori, “A precursory signature for Chi-Chi earthquake in Taiwan”, *Natural Hazards and Earth System Sciences*, 1, 33-36, 2001.
8. 嘉義に電磁気観測点を設置(2001 年 9 月)  
花蓮でのフィールド調査 (2002 年 3 月)  
国立中央大学に開催された “integrated Search for Taiwan Earthquake Precursors” (2002 International Workshop on Earthquake Precursor iSTEP) にて招待講演を行う(2002 年 6 月)  
花蓮に磁気観測点設置(2002 年 9 月)  
富里に電磁気観測点設置(2003 年 3 月)  
国立中央大学劉正彦教授、蔡義本教授千葉大学に來学し、講演を行う (2003 年 12 月)  
国立中央大学にて international workshop を開催し、講演を行う (2004 年 3 月)  
国立東華大学に観測点移設 (2004 年 10 月)  
国立中央大学にて研究打ち合わせ (2004 年 12 月)  
国立中央大学・陳界宏氏が千葉大学に來日し共同研究実施 (2005 年 3～4 月)

1. 地上観測および衛星観測による地球物理学（地球電磁気学）的な地殻活動の監視とそのモデリング
2. 海洋バイオシステム研究センター／助教授／服部克巳
3. イタリア国立環境解析研究所／教授／Vincenzo Lepenna

イタリア国立環境解析研究所／研究員／Luciano Telesca

4. 2003～

5. 地上や衛星で観測された地球物理データに対して、地震に先行する現象を抽出するための統計的な信号処理法の開発を行う。その物理機構を解明し、地震活動の電磁気学的な監視および短期的な予測を実現する。

6. 2003-2004年 日伊2国間共同研究(研究代表者:電通大・早川教授)  
2004年以降なし

7. G. Colangelo, K. Hattori, V. Lapenna, L. Telesca, and C. Yoshino, Extraction of extreme events in geoelectrical signals; an application in a seismic area of Japan, Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics, pp. 93-96, 15-17 March, 2005, Chofu, Tokyo.

Luciano Telesca, Gerardo Colangelo, Katsumi Hattori, Vincenzo Lapenna, Principal component analysis of geoelectrical signals measured in the seismically active area of Basilicata Region (southern Italy), Natural Hazards and Earth System Sciences, 4, 663-667, 2004

服部克巳, 吉野千恵, 芹田亜矢, 高橋一郎, Geraldo Colangelo, Luciano Telesca, ULF帯の電磁場データの主成分解析, 電気学会研究会資料, EMT-04-101, p65-69, 2004年9月

8. 2003年10～11月 イタリア国立環境解析研究所を訪問し、イタリア南部で観測された地電位差データをの主成分解析に関する共同研究を実施した。

2004年6月 イタリア国立環境解析研究所の Dr. Collanero が千葉大学に滞在し、地磁気・地電位差データの解析手法に関する共同研究を実施した。

2005年3月 イタリア国立環境解析研究所の Lapenna 教授、Telesca 博士、Collanero 博士が来日した際、今後の研究打ちあわせを行った。

1. 海産緑藻類の繁殖戦略の進化と生息環境

2. 千葉大学海洋バイオシステム研究センター/助手/富樫 辰也

3. 米国 National Tropical Botanical Garden/Paul Alan Cox 教授、同 John L. Bartelt 博士

4. 平成14年度より開始

5. 進化生態学の理論と実験データに基づいて海産緑藻類の繁殖戦略の進化プロセスと生息環境の相関関係を明らかにする研究を行っている。

6. 科学研究費補助金 若手 (A)

7. Togashi, T., J.L. Bartelt and P.A. Cox. 2004. Simulation of gamete behaviors and the evolution of anisogamy: reproductive strategies of marine green algae. *Ecological Research* 19: 563-569.

Togashi, T., M. Nagisa, T. Miyazaki, J. Yoshimura, J.L. Bartelt and P.A. Cox. Gamete behaviors and the evolution of "marked anisogamy": reproductive strategies and sexual dimorphism in Bryopsidales marine green algae. *Evolutionary Ecology Research* (in press)

8. Ecological Research Award 2005 を受賞。

第17回国際植物学会(2005年7月、オーストリア・ウィーンで開催)において国際シンポジウム *Sexual selection and the evolution of anisogamy* を主催。

1. Crustacean Biogeography in Equatorial area of Southeast Asia (Survey at the Borneo Island, Malaysia)
2. Marine Biosystems Research Center / Professor / Toshiyuki Yamaguchi
3. Indonesia / National Jenderal Soedirman University / R.E. Rrabowo, Indonesia / National Riau University / Dr. Ida Ayu Puspasari, Vietnam / Vietnam National University / Professor P.N. Hong, USA / Scripps Institution of Oceanography / Professor W.A Newman, Thailand / National Songkura University / Dr. Saowapa Angsupanich, Bangladesh / Dhaka University / Dr. Rowshan Ara Begum
4. 2003 (continued since 1998)
5. Research on species composition, biogeography, and its history of establishment in Southeast Asia between Pacific and Indian Oceans
6. Grant-In-Aid for Scientific Research A2 (from 1999 to 2001) and B1 (from 2002-to 2005)
7. Romanus Edy Prabowo and T. Yamaguchi (in press) A new mangrove barnacle of the *Balanus amphitrite* complex from Sumbawa Island, Indonesia. *Journal of Marine Biological Association, U.K.*, 85:929-936.
8. None

1. Phylogeny, Biogeography and Origin of the most primitive barnacles found in the deep-sea hydrothermal vent
2. Marine Biosystems Research Center / Professor / Toshiyuki Yamaguchi
3. USA / Scripps Institution of Oceanography / Professor W.A Newman, New Zealand / Auckland University of Technology / Professor J.S. Buckeridge
4. 2003 (continued since 1988)
5. Study on the barnacles found at the deep-sea hydrothermal vents of East Pacific Rise, Northwest Pacific (including Japanese water), Southwest Pacific, Indian Oceans from the viewpoint of phylogeny, biogeography and their origin.
6. Sumitomo Foundation, Grant-In-Aid for Scientific Research A2 (from 1999 to 2001), B2 (from 2001 to 2005), and B1 (from 2002-to 2005)
7. Yamaguchi, T., W.A. Newman, and J. Hashimoto (2004) A hydrothermal, cold-seep barnacle (Cirripedia: Neolepadinae) and the age of the vent/seep fauna. *Journal of Marine Biological Association of U.K.*, 84:111-120.
8. None

1. Molecular phylogeny of barnacles
2. Marine Biosystems Research Center / Professor / Toshiyuki Yamaguchi

3. Indonesia / National Jenderal Soedirman University / R.E. Rrabowo, Indonesia / Riau University / Dr. Ida Ayu Puspasari, Bangladesh / Dhaka University / Dr. Rowshan Ara Begum
4. 2003 (continued since 1996)
5. Study on molecular phylogeny of barnacles based on nucleotide sequences of a mitochondrial genes.
6. Grant-In-Aid for Scientific Research A2 (from 1999 to 2001), C1 (from 1999 to 2001), and B1 (from 2002-to 2005)
7. Rowshan Ara Begum, T. Yamaguchi, and S. Watabe (2004) Molecular phylogeny of thoracican barnacles based on the mitochondrial 12S and 16S rRNA genes. *Sessile Organisms*, 21 (2): 47-54.  
Rowshan Ara Begum, K. Tsuchida, T. Yamaguchi, M. Nishida and S. Watabe (印刷中) Complete mitochondrial genome of the sessile barnacle *Tetraclita japonica*. *Special MBC 2003 Proceedings Issue of Marine Techonology*,
8. None

1. On the study of electromagnetic phenomena associated crustal activity
2. Marine Biosystems Research Center / Associate Professor/ Katsumi Hattori
3. Russia / Institute of Physics of the Earth / Dr. Oleg Molchanov  
Russia / Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation (IZMIRAN) / Dr. Yuri Kopytenko  
Russia / Geophysical Service Kamchatka Department / Dr. Eviginii Gordeev  
Ukraine / Lviv Center of Space Research / Dr. Varelly Korepanov
4. 1998~
5. Recognizing the importance of ULF geomagnetic field changes among electromagnetic phenomena preceding large earthquakes, this project aims at researches on developments of sensors, observation, and methodology, clarification of physical mechanism, and establishing the monitoring and short-term prediction of crustal activity.
6. RIKEN (-2002)  
JSPS Grants-in Aid for Scientific Research(2002-2004)  
JSPS Grants-in Aid for Scientific Research(2002-2004)
7. Yu. A. Kopytenko, V. S. Ismaguilov, K. Hattori, and M. Hayakawa, Determination of hearth position of forthcoming strong EQ using gradients and phase velocities of ULF geomagnetic disturbances, Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics, pp. 166-169, 15-17 March, 2005, Chofu, Tokyo  
Kopytenko Yu.A., Ismaguilov V.S., Hattori K., Hayakawa M., Gradients and Phase Velocities of ULF magnetic disturbances (F=0.1-0.4Hz) before and during strong earthquakes inf 2003 year at Bosso Peninsula (Japan), 2004 Asia-Pacific Radio Science Conference Proceedings, p. 545, August 24-27, 2004, (Qingdao, China).  
Molchanov, O.A.; Schekotov, A.Ju.; Hattori, K.; Solovieva, M.S.; Fedorov, E.N.; Chebrov, V.; Saltikov, D.; Hayakawa, M., Near-seismic effects in ULF fields and seismo-acoustic emission : statistics and explanation, European Geosciences Union 1<sup>st</sup> General Assembly (CD-ROM), April 25-30, 2004, Nice, France  
Gotoh, K., Hayakawa, M., Smirmova, N., and Hattori, K., Fractal analysis of seismogenic ULF emissions, *Physics and Chemistry of the Earth*, 29, 419-424,2004.  
M. Hayakawa, K. Hattori, A. P. Nickolaenko, and L. M. Rabinowicz, Relation between the energy of earthquake swarm and the Hurst exponent of random variations of the geomagnetic field, *Physics and Chemistry of the Earth*, 29, 379-387, 2004.  
Hattori, K., Takahashi, I., Yoshino, C., Isezaki, N., Iwasaki, H., Harada, M., Kawabata, K., Kopytenko, E., Kopytenko, Y., Maltsev, P., Korepanov, V., Molchanov, O., Hayakawa, M., Noda, Y., Nagao, T., Uyeda, S., ULF geomagnetic field measurements in Japan and some recent results associated with Iwateken Nairiku Hokubu Earthquake in 1998, *Physics and Chemistry of the Earth.*, 29, 481-494, 2004.  
Ismaguilov, V., Kopytenko, Y., Hattori, K., and Hayakawa, M., 2003: Variations of phase velocity and gradient values of ULF geomagnetic disturbances connected with the Izu strong earthquake, *Natural Hazards and Earth System Sciences*, 3, 211-215,2003.  
Kopytenko, Y., Ismaguilov, V., Molchanov, O., Kopytenko, E., Voronov, P., Hattori, K., Voronov, P., Hayakawa M., Zaitsev, D., Investigation of

4. 2001~
5. The project aims at clarification of the physical mechanism of electromagnetic phenomena preceding earthquakes and realizing of monitoring and short-term prediction of large earthquake in Taiwan.
6. RIKEN (2001),  
Interchange Association, Japan (2004)
7. Katsumi Hattori, ULF geomagnetic changes associated with large earthquakes, *Terrestrial, Atmospheric and Oceanic Sciences*, Vol.15, No.3, 329-360, 2004  
  
Masashi Kamogawa, Jann-Yenq Liu, Hironobu Fujiwara, Yu-Jung Chuo, Yi-Ben Tsai, Katsumi Hattori, Toshiyasu Nagao, Seiya Uyeda, and Yoshi-Hiko Ohtsuki, Atmospheric field variations before the March 31, 2002 M6.8 earthquake in Taiwan, *Terrestrial, Atmospheric and Oceanic Sciences*, Vol.15, 397-412, September 2004.  
  
Hattori, K., Takahashi, I., Yoshino, C., Nagao, T., Liu, J.Y., Shieh, C.F.,  
ULF Geomagnetic and Geopotential Measurement at Chia-Yi, Taiwan, *Journal of Atmospheric Electricity*, 22, 3, 217-222, 2002.  
  
K. Hattori, Y. Akinaga, K. Gotoh, C. Yoshino, Y. Kopytenko, M. Hayakawa, K. Yumoto, T. Nagao, S. Uyeda, J. Y. Liu, C. H. Shieh, ULF Geomagnetic Anomalies Associated with Earthquakes and Observations in Taiwan, 2002 International Workshop on Earthquake Precursor iSTEP \_integrated Search for Taiwan Earthquake Precursors, p.96—97, 2002.  
  
Y. Akinaga, M. Hayakawa, J.Y. Liu, K. Yumoto, K. Hattori, “A precursory signature for Chi-Chi earthquake in Taiwan”, *Natural Hazards and Earth System Sciences*, 1, 33-36, 2001.
8. Install electromagnetic sensor in Chia-Yi. (September, 2001)  
Filed survey around Hualien (March, 2002)  
Invited talk in the kick off meeting of project of National Central University entitled “integrated Search for Taiwan Earthquake Precursors” (2002 International Workshop on Earthquake Precursor iSTEP ) (June, 2002)  
Install electromagnetic sensor in Hualien. (September, 2002)  
Install electromagnetic sensor in Fuli (March, 2003)  
Profs. Jann-Yenq Liu and Yi-Ben Tsai came to Chiba University and gave talks (December, 2003)  
International workshop was organized at National Central University, Taiwan (March, 2004)  
· Install electromagnetic sensor in Donghua University (October, 2004)  
Discussion with Prof. Liu at National Central University (December 2005)  
Mr. Jay-hong Chen stayed at Chiba University for collaboration (March-April 2005)

1. Ground-based and satellite geophysical monitoring and modeling of seismotectonic structure
2. Marine Biosystems Research Center / Associate Professor/ Katsumi Hattori
3. Istituto di Metodologie per l'Analisi Ambientale, CNR C.da S.Loja/ /Prof. Vincenzo Lapenna Istituto di Metodologie per l'Analisi Ambientale, CNR C.da S.Loja / Research Scientist /Dr. Luciano Telesca
4. 2003~
5. the statistical analysis of geomagnetic and geoelectric signals recorded in seismic areas
6. 2003—2004 SPS Bilateral collaboration project between Japan and Italy (PI: Prof. M. Hayakawa (The University of Electro-Communications))  
after 2004 no fund
7. G. Colangelo, K. Hattori, V. Lapenna, L. Telesca, and C. Yoshino, Extraction of extreme events in geoelectrical signals; an application in a seismic area of Japan, *Extended Abstracts of 2005 International Workshop on Seismo Electromagnetics*, pp. 93-96, 15-17 March, 2005, Chofu, Tokyo.  
Luciano Telesca, Gerardo Colangelo, Katsumi Hattori, Vincenzo Lapenna, Principal component analysis of geoelectrical signals measured in the seismically active area of Basilicata Region (southern Italy), *Natural Hazards and Earth System Sciences*, 4, 663-667, 2004
8. October-November 2003, Visit to Istituto di Metodologie per l'Analisi Ambientale, CNR and discuss and analyze geoelectrical potential difference data recorded in seismic areas, southern Italy.

June 2004, Dr. Collanero at Istituto di Metodologie per l'Analisi Ambientale, CNR stayed at Chiba University and discuss and analyze geoelectrical potential difference data recorded in seismic areas, Japan.

March 2005, Discussion on future collaboration with Prof. Lapenna, Dr. Telesca, and Dr. Collanero in Japan when they came to attend meeting in Japan.

1. Evolution of reproductive strategies and the environmental conditions of habitats in marine green algae
2. Marine Biosystem Research Center / Research Associate / Tatsuya Togashi Ph.D
3. US National Tropical Botanical Garden / Prof. Paul Alan Cox and Dr. John L. Bartelt
4. From 2002
5. We are studying the evolution of reproductive strategies and the environmental conditions of habitats in marine green algae based on laboratory observations and theoretical approaches.
6. JSPS Scientific research fund for young scientists (A)
7. Togashi, T., J.L. Bartelt and P.A. Cox. 2004. Simulation of gamete behaviors and the evolution of anisogamy: reproductive strategies of marine green algae. *Ecological Research* **19**: 563-569.  
Togashi, T., M. Nagisa, T. Miyazaki, J. Yoshimura, J.L. Bartelt and P.A. Cox.  
Gamete behaviors and the evolution of "marked anisogamy": reproductive strategies and sexual dimorphism in Bryopsidales marine green algae. *Evolutionary Ecology Research* (in press)
8. We have received the Ecological Research Award 2005 and organized an international symposium at the International Botanical Congress 2005 in Vienna, Austria.