
[Virtual Library] ホームページ<http://www.space-library.com> ミルスペースのアーカイブ他 [What's New] 新着アップデート

[スペースライブラリ1周年記念] 4月6日(木)に1周年記念会を実施することにしました。

CDI Space Security Update #5 ~ March 23, 2006

**3/21 WSI ワールド・セキュリティ・インスティテュートから中国セキュリティジャーナル第2号が発行された
中国宇宙開発の安全保障面の問題に関して中国人6名と米国人2名の執筆者の論文を掲載**

NB#1: The second issue of the World Security Institute's China Security journal was released on March 21, 2006. China Security is a unique policy journal featuring Chinese scholars who provide their perspective on vital traditional and non-traditional security issues that impact China's strategic development and its relations with the United States. In this issue, China Security features six Chinese authors and two American authors who discuss China's space program and policies and how the Chinese are affected by U.S. activities in space. In addition, World Security Institute President Bruce Blair and Co-Director of the World Security

http://www.cdi.org/program/document.cfm?DocumentID=3367&StartRow=1&ListRows=10&appendURL=&Orderby=D.DateLastUpdated&ProgramID=68&rom_page=index.cfm.

Institute's International Media Division Chen Yali provide a comprehensive overview of the issue's salient arguments in their "Editors' Notes." This issue of China Security also provides English-translated reviews of expert articles only available in Chinese, including a review of the new Chinese National Television (CCTV) documentary on the history of the Chinese space program, "Shaking the Heavens." A number of articles and books recently published by Chinese authors on space weaponization, civilian space programs and the exploitation of space resources are also explored. For more information, go to:

'中国に対する保守的な恐れで過剰反応'とヴィクトリア・サムソン(CDIリサーチ・アナリスト)

NB#2: In her op-ed, "Conservatives' fear of China is overplayed," CDI Research Analyst Victoria Samson argues that while "China is rapidly becoming to many U.S. conservatives the primary menace to U.S. national security," she also points out that this mentality can "create a self-fulfilling prophecy." Samson concludes with the

http://www.cdi.org/program/document.cfm?DocumentID=3359&StartRow=1&ListRows=10&appendURL=&Orderby=D.DateLastUpdated&ProgramID=68&rom_page=index.cfm.

warning that this mindset can cause the United States to "lose out on tremendous opportunities for cooperation -- and, in the process, harm only itself." The op-ed, which first ran in the Providence Journal on March 12, 2006, is available at:

TacSat プログラムについて論じた新 GAO(政府アカウンタビリティ・オフィス)が興味深い

NB#3: Of interest is a new Government Accountability Office (GAO) report which discusses the TacSat program. "DOD Needs a Department-wide Strategy for Pursuing Low-Cost, Responsive

http://www.cdi.org/program/document.cfm?DocumentID=3365&StartRow=1&ListRows=10&appendURL=&Orderby=D.DateLastUpdated&ProgramID=68&rom_page=index.cfm.

Tactical Space Capabilities (GAO-06-449)," Government Accountability Office, March 14, 2006, is available at:

'SBIR High は新技術が支持され、開発中の衛星がお蔵入りになり得る'と警告、ヴィクトリア・サムソン(CDI 同)

NB#4: CDI Research Analyst Victoria Samson warns that "The satellites being developed under the Space-Based Infrared System (SBIRS) High program could get pushed aside in favor of new technology. If that happens, it will largely be the result of the myriad of problems that SBIRS High has undergone in its 10-year history of running behind schedule and over budget." In her op-ed, "A Contender for SBIRS High," she examines the alternative being proffered and explains how the "Alternative Infrared Satellite System (AIRSS) may take up SBIRS High's slack." First published in Space News on March 13, 2006, her op-ed is available on CDI's website at: www.cdi.org.

MDA は宇宙テストベッドを軽く見る

1. MDA downplays Space Test Bed

露 GLONASS 対象は一般大衆へと移行しつつある

2. GLONASS shifting towards consumers

宇宙と欧州の安全保障

3. Space and Europe's security

小型衛星は軍事的役割が増大する方向に

4. Smallsats to increase military role

GPS III の入札が4月に開始される

5. GPS III bids sought starting in April

中国は 2006 年に衛星 9 機を打上げる計画

6. China to launch nine satellites in 2006

Lance W. Lord 大将は空軍宇宙コマンドの司令官としての在任を終了

7. Gen. Lance W. Lord ends tenure as commander of Air Force Space Command

米国とインドの間の共同宇宙協力

8. Joint space cooperation between the United States and India

MDA は宇宙テストベッドを軽く見る

1. MDA downplays Space Test Bed

In testimony to the House Armed Services Committee's Strategic Forces subcommittee on March 9, 2006, Lt. Gen. Trey Obering, head of the Missile Defense Agency (MDA), sought to reassure members vis-à-vis MDA's intentions for its Space Test Bed. In downplaying the significance of the program, which is planning on starting initial studies on it in Fiscal Year 2007, Obering stated, "It

is a test bed just for experimental purposes." Of course, in 2001, his predecessor, Lt. Gen. Ronald Kadish, was saying the same thing about the Ft. Greely test-bed, which is now where 10 interceptors have been fielded as part of the Ground-based Midcourse Defense (GMD) system. (Defense Daily, March 10, 2006)

露 GLONASS 対象は一般大衆へと移行しつつある

2. GLONASS shifting towards consumers

In what appears to be an attempt to compete with the U.S. Global Positioning System and Europe's Galileo satellite network, Russia is striving to expand its GLONASS satellite navigation network with the goal of completely commercializing it within two years. Sergei Ivanov, Russia's defense minister, announced, "Work on the intensification [of the system] will soon be complete and the program will be adopted in the immediate future." He admitted, however, that GLONASS "needs decisions to be corrected so that

the technological cycle corresponds to the country's economic and financial capabilities." Russia will be eliminating restrictions this year on allowing access to coordinates. Also, Russia has signed an agreement with India to allow the latter's military access to the information and hopes to get India involved in commercializing and expanding the 17-satellite network. (RIA Novosti, March 22, 2006; www.spacedaily.com, March 14, 2006)

宇宙と欧州の安全保障

3. Space and Europe's security

On March 10, 2006, EADS Astrium and Alcatel Alenia Space gave a presentation called "The role of space for Europe's security operations." According to their website, this was geared around the ASTRO+ project (Advanced Space Technologies to support

security Operations), which "will highlight the contribution of space technologies to civilian and civilian-military crisis management, in terms of Earth observation, navigation and telecommunications. The effectiveness and uniqueness of the

ASTRO+ approach stems from a continuous, transparent dialogue between the operators and manufacturers of tools designed to meet <http://www.home.alcatel.com/vpr/vpr.nsf/DateKey/09032006uk>.

小型衛星は軍事的役割が増大する方向に

4. Smallsats to increase military role

Ronald Sega, undersecretary of the Air Force, has said that his service is considering how to fit in more small satellites in its Fiscal Year 2008 program objective memorandum (POM). And if Sega has his way, smallsats will see their profile raised: "I believe [smaller satellites] should have a greater role," said Sega. He argues that cheap, nearly disposable satellites could be used by various

GPS III の入札が4月に開始される

5. GPS III bids sought starting in April

A request for proposals is expected to finally be released next month for the follow-on to the U.S. Global Positioning System (GPS), GPS III. The Air Force expects to make its decision as to who will build the space portion of GPS III by the end of this calendar year. Leading the pack are Boeing and Lockheed Martin, who have been doing risk reduction activities for the Air Force on GPS III. GPS III has been promoted by the Air Force as a way of ensuring sanctity of the signal, even if jamming efforts are attempted. With \$3.4 billion requested for the program through Fiscal Year 2011, the Air Force is trying to get the first launch by Fiscal Year 2013 and eventually build up to a 24-satellite constellation, with three satellites on-orbit as extras. GPS III may

中国は2006年に衛星9機を打上げる計画

6. China to launch nine satellites in 2006

The president of the China Aerospace Science and Technology Corporation, Zhang Qingwei, announced on March 8, 2006, that nine satellites are set to launch this year. The country will send its first satellite containing nothing but seeds as an experiment to allow experimental cultivation in environments exposed to cosmic radiation and micro-gravity. Others include a meteorological satellite and an oceanic satellite. In a move by Premier Wen Jiabao

Lance W. Lord 大將は空軍宇宙コマンドの司令官としての在任を終了

7. Gen. Lance W. Lord ends tenure as commander of Air Force Space Command

Gen. Lance W. Lord, commander of Air Force Space Command, officially ended his 37-year career at a retirement ceremony held on March 3, 2006, at Peterson Air Force Base, Colo. He has led Air Force Space Command since April 19, 2002. He spoke of two highlights in his career, one being bestowed The Order of the

tomorrow's needs." For more information, go to:

services in tactical situations. Another benefit of the smallsats is that: "As technology advances, there are options in some areas for doing things in smaller packages." Smallsats could also be used in on-orbit test beds or experiments – whether these would be military in nature or not, it is unclear from his statements. (Defense Daily, March 17, 2006)

get even bigger, as the Defense Science Board (DSB) released a report in October 2006 that suggested a constellation of 30 satellites, positing that "the larger constellation not only increases robustness, but is essential to improving GPS performance in the ground warfare

environment where urban and mountainous terrain masks some of the satellite signals." A new civil signal, L1C, will be part of the first batch of GPS III satellites; it is supposed to be compatible with Europe's Galileo satellite navigation system's L-1 open service signal. More updates are planned for the GPS III program but may be held back until later blocks are put on orbit. (Defense Daily, March 9, 2006)

to shift China's space program from "experimental application" to business services, one of the launched satellites will be the SinoSat 2, China's first direct broadcasting satellite. The satellite is based on China's new Dongfanhong 4 satellite platform and will have a life mission of 15 years. It is anticipated to be capable of transmitting TV signals to even China's most remote regions.(SpaceDaily.com, March 9, 2006)

Sword, the Air Force's highest honor, and the second, his work with school children in the High Frontier Adventures program. He is succeeded temporarily by Vice Commander Lt. Gen. Frank G. Klotz.

(Air Force Command Public Affairs, March 3, 2006)

米国とインドの間の共同宇宙協力

8. Joint space cooperation between the United States and India

The U.S. government has agreed to export two NASA-funded instruments for the upcoming launch of the Chandrayaan-1 of the Indian Space Research Organization (ISRO). The Miniature Synthetic Aperture Radar (MSAR) and the Moon Mineralogy Mapper (M3) were chosen from 16 different firm proposals from around the globe. NASA and ISRO have formulated an agreement

to share data and safeguard the protected technologies. The effort is a product of the joint working group on Civil Space Cooperation, formed in 2005 to supervise and evaluate joint civil space research programs to allow for smooth cooperation. (NewKerala.com, March 2, 2006)

http://www.wsichina.org/attach/china_security2.pdf **上記 NB#1 の論文誌**



<http://www.cdi.org/program/issue/document.cfm?DocumentID=3367&IssueID=222&StartRow=1&ListRows=10&appendURL=&Orderby=DateLastUpdated&ProgramID=68&issueID=222>

March 21, 2006 China Security Journal Released by World Security Institute

WASHINGTON , D.C. -- The second issue of the World Security Institute's China Security journal has been released today. Produced by the World Security Institute's China Program, China Security is a unique policy journal featuring Chinese scholars who provide their perspective on vital traditional and non-traditional security issues that impact China's strategic development and its relations with the United States. The English-language journal seeks to build bridges between Washington and Beijing on today's security issues.

The second issue of China Security is focused on the Chinese space program. In this issue, China Security features six Chinese authors and two American authors who discuss China's space program and policies and how the Chinese are affected by U.S. activities in space. In addition, World Security Institute President Bruce Blair and Co-Director of the World Security Institute's International Media Division Chen Yali provide a comprehensive overview of the issue's salient arguments in their "Editors' Notes."

This issue of China Security also provides English-translated reviews of expert articles only available in Chinese, including a review of the new Chinese National Television (CCTV) documentary on the history of the Chinese space program,

エディタの巻頭言:宇宙安全保障のジレンマ Editors' Notes: **The Space Security Dilemma, by Bruce Blair and Chen Yali**

「双方向のやりとり...そして建設的協力提案は宇宙政策分野でやっと途についたばかりである。対話はいびつで、修辞学的に長舌、情報面では欠落しているものである。」

“Bilateral exchanges...and constructive proposals for cooperation

中国の宇宙ミッション **China's Space Mission, by Chang Xianqi and Sui Junqin**

「中国はマイクロサテライトを衛星攻撃兵器として使う計画はない。なぜなら、中国はこの技術を保有する最初の国家でもなく、また、もっとも進んだ技術をもっている国でもないからであり、中国が他の国の懸念となるのは理解できない」 “China does not have any plan to use micro-satellites as anti-satellite weapons...since China is neither the first country to possess this technology, nor the

宇宙における安全保障 **Security in Space, by Zhang Hui**

「制限した衛星攻撃兵器の提案の一方で米のミサイル防衛システム配備を許容することは中国から見れば差別的と感じられるであろう。中国を含んだ如何なる部分的な兵器管理手段であってもこの懸念を強調すべきである。」 “...a proposal that restricted ASATs while allowing the deployment of a U.S. missile defense system

戦略的話し合い **Strategic Communication, by Joan Johnson-Freese**

「米がある技術を追究する時は、それは地球全体の世界とのつながりのためである。中国が類似の技術を追究する時、共産主義政府のために極悪非道な意図が想定されてしまう。」 “When the United States pursues certain technologies...it is for connectivity in

神舟と宇宙の夢 **Shenzhou and Dreams of Space, by Sun Dangen**

「有人宇宙計画が成功した時は国の力を統合する助けになり、中国が科学と技術の進歩と国の包括的力で国のセキュリティを守る道を切拓く方向にさらに固めるであろう。」 “When the success of the manned space program helps consolidate the country's strength, it will further lock China in the development path of protecting

宇宙の兵器配備武装化 **Space Weaponization, by Teng Jianqun**

「もし制約が課されなければ、人間の生産活動の発展は必然的に陸、海、空そして宇宙空間からの戦争をもたらすと考えるのは妥当である。国際社会は歴史に学び、宇宙への兵器配備武装化への

“Shaking the Heavens.” A number of articles and books recently published by Chinese authors on space weaponization, civilian space programs and the exploitation of space resources are also explored.

have barely begun in the arena of space policy. The dialogue is oblique, long on rhetoric and short on information.”

--Bruce Blair, president of the World Security Institute, and Chen Yali, editor-in-chief of Washington Observer Weekly

country with the most advanced technology, it seems incomprehensible that China should cause concern to others.”

--Chang Xianqi, professor and former president of the Institute of Command & Technology, and Sui Junqin, Ph.D. candidate at the Institute of Command & Technology

would be perceived by China as discriminatory...any partial arms control measure involving China should emphasize this concern.”

--Zhang Hui, research associate at the Project on Managing the Atom of the Belfer Center for Science and International Affairs at Harvard University's John F. Kennedy School of Government

a global world. When China pursues similar technology, nefarious intent is assumed because of its Communist government.”

--Joan Johnson-Freese, chair of the department of national security studies at the Naval War College

national security with advancement of science and technology and national comprehensive strength.”

--Sun Dangen, senior research fellow at the Academy of Military Sciences

現在の流れを止めるかあるいは少なくともその傾向を遅らせるべきである。」 “It is reasonable to assume that the development of human productivity will ineluctably bring war from land, sea and

air into outer space if no constraints are placed on it. The international community should draw lessons from history and should either halt the current drift toward space weaponization or, at

the very least, slow its trend.”

--Teng Jianqun, director of the research department of the China Arms Control and Disarmament Association

宇宙と輸出管理 Space and Export Control, by Guo Xiaobing

「米には、中国の宇宙における開発を妨げる目標に失敗し、そして中国を疎遠にし、両国間の敵対関係に油を注いだ政策を処分し新しい指針を立てる好機が到来した。」 “ It is high time the U.S. chart a new course and dispose of a policy that has not only failed in its goal of preventing China ’s development in space, but

has alienated China and fueled an adversarial relationship between the two countries.”

--Guo Xiaobing, researcher at the China Institute of Contemporary International Relations

宇宙の脆弱性 Vulnerabilities in Space, by Eric Hagt

「お互いが他方を恐れる環境にあっては、先ず兵器を開発配備し、宇宙における軍事的優位性を確保し、両国の安全保障上の利益を損なうように威嚇する負のサイクルが生じる。」 “ An environment, where each fears the other will be first to develop and deploy weapons and gain the military advantage in space, creates a vicious

circle that threatens to undermine the security interests of both countries as well as the international community.”

--Eric Hagt , director of the China Program at the World Security Institute

宇宙開発の目標 Development Goals in Space, by Wu Chunsi

「中国は宇宙や他の分野での超大国と軍事的に競争するのにかまっていられるほどの寛沢は持ち合わせていない。」 “ China does not have the luxury of engaging in a military competition with

superpowers in space, or in other areas.” --Wu Chunsi, associate professor at the Center for American Studies, Fudan University

The World Security Institute is a non-profit organization committed to independent research and journalism on global affairs. Given the extraordinary growth of global interdependence, the Institute provides an innovative approach to communication, education, and cooperation on the social, economic, environmental, political and military components of international security. Through a variety of publications and services, the World Security Institute provides news and research-based analysis to policy-makers around the globe – from decision-makers in Washington , D.C. and Moscow , to scholars in the Farsi- and Arabic-speaking world, to scientists in China . The Institute serves as an authoritative and

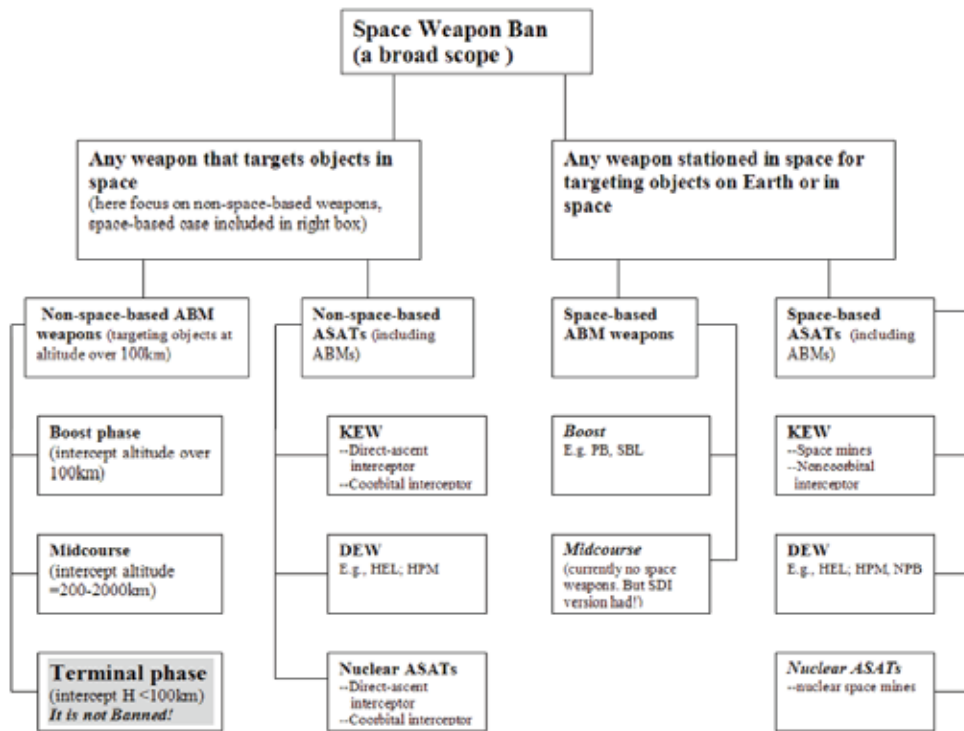
impartial monitor of security issues, while continuing to meet the increasing worldwide demand for information and independent ideas.

In 2004, the World Security Institute successfully launched a new effort dedicated to promoting research and dialogue between China and the United States on a range of traditional and non-traditional security issues that deeply impact this crucial relationship. The China Program presently focuses on a number of core projects: China-U.S. Dialogue on Space; China’s Energy Security: New Approaches, Media and Policy; and Challenges for China, the United States, and Europe: A Trialogue on Comprehensive Security.

2006 Issue No.2 China Security China’s Space Ambitions

BMDと広義の宇宙兵器の関係

The relation between BMD and the broad scope interpretation of space weapon



2006年3月24日 人民網日本語版

外交部「中国は宇宙開発競争をしない」

外交部の秦剛報道官は 23 日の定例記者会見で、宇宙事業について次のように述べた。
中国は一貫して、いかなる国とも宇宙開発競争を行わず、いかなる国とも宇宙軍拡競争で手を結ばないと主張してきた。宇宙分野

における中ロ協力は、純粋に宇宙空間平和利用に属する国際協力である。われわれの宇宙開発事業は開放的であり、ロシアを含むすべての国々との相互尊重、互惠協力、平和利用、共同発展の原則に基づく交流と協力の実施を望んでいる。(編集 NA)

Aerospace Daily & Defense Report Mar 21, 2006

Hoyer 民主党議員は Swales 社の tacsat の事業と予算を推進

Hoyer promotes Swales tacsat efforts, funding

House Democratic Whip Steny Hoyer (Md.) visited Swales Aerospace in Beltsville, Md., on March 20 to highlight \$39 million recently appropriated for "operationally responsive" satellite research.

Hoyer helped earmark funds for so-called "**operationally responsive satellites**" (**ORS**) - also known as tactical satellites (**tacsats**) - which are envisioned for launching small payloads into low earth orbit inexpensively and within hours or days of the requirement to proceed.

Hoyer said it was a competitive program to develop and deploy a system for rapidly protecting and reconstituting critical space capabilities "on demand."

"Funding for **ORS** will accelerate this critical technology development and could provide a first launch capability in as early

as 24 months," he said. Hoyer toured Swales Aerospace's Beltsville facility and saw a production line of satellites set to be launched this fall.

Congress, in the fiscal 2006 defense appropriations act passed in December, approved \$20 million for standardized bus development and \$19 million for operationally responsive payload development. Congress provided \$25 million in FY' 05 to establish a new program for tacsat payloads after the Air Force asked for \$35.4 million two years ago to develop an **operationally responsive launch** vehicle.

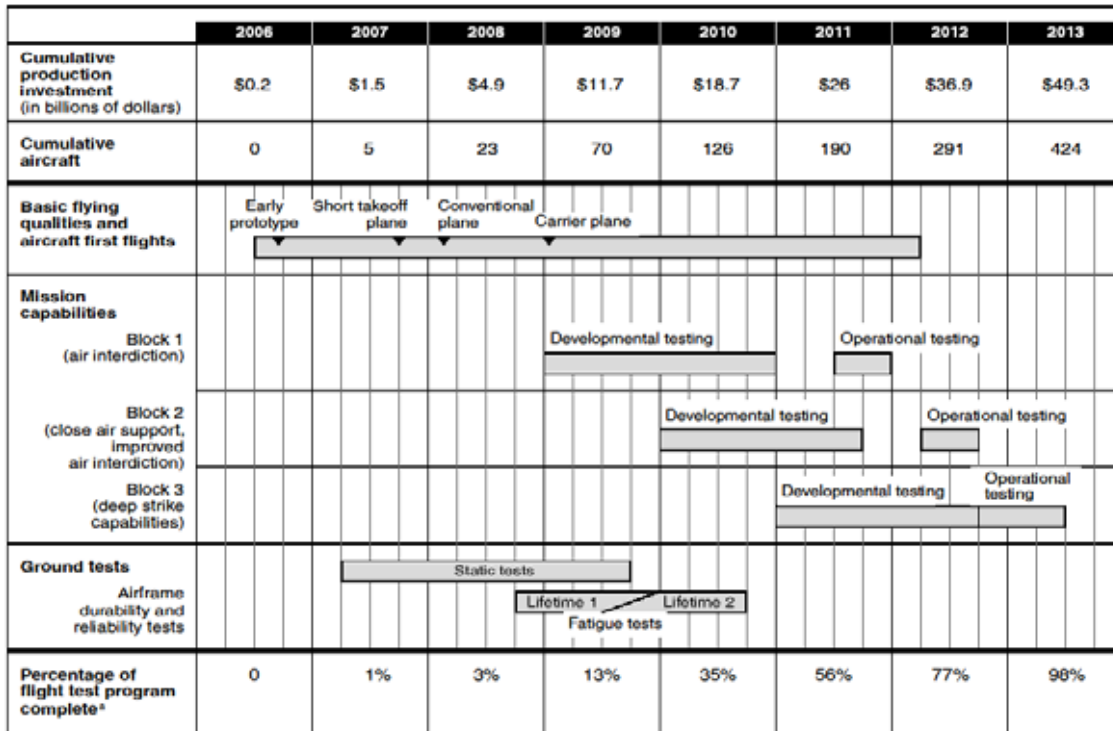
In the FY '06 annual authorization act, Congress further mandated that the Defense Department establish or designate an internal organization to coordinate joint operationally responsive space payload technology.

The organization is responsible for an annual master plan for payload technology coordination, as well as coordination of resources provided to "stimulate" technical development of small satellite payloads, according to the act's congressional conference

agreement. Nevertheless, Congress stipulated that the defense secretary, through the director of the DOD **Office of Force Transformation (OFT)**, award contracts. - Michael Bruno (michael_bruno@AviationNow.com)

Aerospace Daily & Defense Report Mar 21, 2006

Overlap of Low-Rate Initial Production Investments and Testing Demonstrations of the Joint Strike Fighter Variants



a Flight testing data reflects the percentage of the total flight tests completed at the time of the planned investment decision, which is currently planned for January of each year. Source: DOD (2005 data); GAO (analysis and presentation).

2006年3月24日 11:32 時事通信社「世界週報」 4月4日号目次 [\[抜粋\]](#)

特集 4年ごとの米国防計画見直し

「戦略岐路」にある国家を “ヘッジ”する米国の新国防戦略(川上高司)

QDR 米安全保障専門家インタビュー

アンドリュー・クレピノピッチ氏(戦略予算評価センター所長) /// マイケル・オハンロン氏(ブルッキングズ研究所上級研究員) ///

ミッシェル・フロノイ氏(戦略国際問題研究所上級顧問) /// クラーク・マードック氏(戦略国際問題研究所上級顧問)

中国はQDRをどのように受け止めるか(茅原郁生)

米国防総省「4年ごとの国防計画見直し」抜粋訳

ブッシュ南アジア歴訪 /

インドを「第6の核保有国」として容認(福永正明)

<シリーズ>

今週の軍事情報 / またも登場した北朝鮮新型ミサイル(江畑 謙介)

日本と世界の安全保障 / ブッシュ政権の危険な賭け(兵藤長雄)

宇宙よもやま話 / 「はやぶさ」創痕の復活(的川泰宣)

記事1 / 特集・4年ごとの米国防計画見直し

「戦略的岐路」にある国家を“ヘッジ”する米国の新国防戦略

拓殖大学国際開発学部教授 川上高司

2月に発表された「4年ごとの国防計画の見直し」(QDR)で、アメリカは「長期戦争」の真ただ中にあり、「イラク後」も戦いは継続することを発表した。ブッシュ大統領は「テロとの戦い」という「錦の御旗」を改めて掲げ、残りの3年の任期を全うし、11月の中間選挙で勝利を得る戦略である。また、アメリカ国民もテロに備える本土防衛を最優先課題として認識している。今回のQDRはブッシュ政権になってから2回目であり、今後20年間を見通した包括的なものとなった。新国防戦略では、「本土防衛」をその中心課題に据えながらいかにテロとの「長期戦争」を闘い抜くかとともに、戦略的分岐

かわかみ・たかし 1955年生まれ。82年京都産業大学大学院修士課程修了、ジョージタウン大学大学院留学、大阪大学博士(国際公共政策)。 Fletcher School 外交政策分析研究所研究員、防衛庁防衛研究所主任研

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記事2 / 特集・4年ごとの米国防計画見直し

中国はQDRをどのように受け止めるか 「右手に棍棒、左手で握手」の米

拓殖大学国際開発学部教授 茅原郁生

米国は2006年「4年ごとの国防計画の見直し(QDR)」を去る2月6日に公表し、中国に対して色濃く警戒感を表明した。その背景には、中国の軍備強化に対する米国の懸念があり、昨夏のロシアとの合同軍事演習や昨秋の有人衛星・神舟6号の打ち上げな

かやはら・いくお 1938年生まれ。防衛大学校(第6期)卒。元陸将補。陸上自衛隊師団幕僚長、防衛研究所研究室長、研究部長、この間に外務省出向、ロンドン大学客員研究員などを経て99年から現職。学生センター長。

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記事3 / 南アジア インドを「第6の核保有国」として容認 米大統領の南アジア歴訪

岐阜女子大学 南アジア研究センター客員教授 福永正明

ブッシュ米大統領による就任後初の南アジア歴訪は、劇的な成果を生み出した。大統領はインドを「ナチュラルパートナー」と呼び重視策を強調、インドのシン首相も対米接近に踏み込んだ。米印は「中国対抗カード」ともなる「共通の価値観に基づく戦略的パートナーシップ」を確立した。緊密で戦略的な米印関係の出現とい

ふくなが・まさあき 1955年生まれ。インド国立パナールス・ヒンドゥー大学大学院にて博士号取得。北インド社会構造、ヒンドゥー教聖地、南アジア地域協力などを専攻。現在南アジア地域協力連合研究調査会事務局長、

点(ストラテジック・クロスロード)にある中国などの国の選択肢を限定する「ヘッジ(囲い込み)戦略」が打ち出された。

また、国防総省はQDRを発表すると同時に、07会計年度の国防予算4393億ドルを議会に提出した。国防費の総額は前年度比6.9%増となり、緊縮型の予算全体の中で突出したものとなった。この予算案には、重厚長大な「20世紀」型軍隊から機動性に富む「21世紀」型軍隊に変革を進めるというラムズフェルド国防長官の目標がはっきりと打ち出されている。

究官、RAND研究所客員研究員、北陸大学法学部教授を経て現職。主な著書に「米軍の前方展開と日米同盟」「米国の対日政策」「国際秩序の解体と統合」など。

どへの憂慮がある。米国がQDRで中国の脅威を強調する狙いは何か、中国はそれをどのように受け止めるのか、今後の米中関係への影響などを検討してみたい。

専門は中国軍事、アジアの安全保障。著書に「安全保障から見た中国」「中国軍事論」、編著に「中国エネルギー戦略」「中国空軍」「中国は何処に向かう?」「中国の核・ミサイル・宇宙戦力」など。

う南アジア地域でのパラダイムシフトは、域内の安定だけでなく、国際政治システムに大きな影響を及ぼすであろう。「輝くインド」の存在と、米印協調を世界に印象付けた、米大統領南アジア歴訪について報告する。

岐阜女子大学南アジア研究センター客員教授。上智大学外国語学部非常勤講師。著書に「インド旅案内」など。

2006年3月22日 18:50 WIRED NEWS (2006/03/22)

HDDに代わるフラッシュメモリ:容量 32GB

<http://hotwired.goo.ne.jp/news/20060322303.html>

韓国サムスン電子は、ノートパソコン用の記憶装置で、ハードディスクドライブ(HDD)の代わりにフラッシュメモリを利用した製品を発

表。容量は 32GB で HDD に劣らないうえ、軽量で読書きが速く、消費電力も少ないのが長所。HDD を脅かす存在になると期待。

2006年3月20日 18:20 WIRED NEWS (2006/03/20)

DSL:契約数が最も多いのは中国、日本3位

<http://hotwired.goo.ne.jp/news/20060320107.html>

2005 年末の世界の DSL(デジタル加入者回線)契約件数調査によると、契約数が最も多いのは中国、54%増加。DSL 先進国の韓国

は逆に契約数減少、全体的に後発国追上げが目立っている。

2006年3月17日 17:43 WIRED NEWS (2006/03/17)

初期宇宙の「インフレーション」の証拠を確認

<http://hotwired.goo.ne.jp/news/20060317302.html>

米の研究チームが、宇宙はビッグバン直後、一瞬のうちに膨張したとする「インフレーション理論」を裏づける直接的証拠をつかん

だと発表。NASA 衛星「WMAP」による宇宙マイクロ波背景放射の観測データを詳細分析して得られた結論。

2006年3月16日 18:00 WIRED NEWS (2006/03/16)

脳波制御のインターフェース、実演

<http://hotwired.goo.ne.jp/news/20060316301.html>

ドイツ技術見本市「CeBIT」で、革新的インターフェースが発表された。脳波を検出しコンピュータの扱えるコマンドに変換するというも

ので、実用化されればユーザを面倒なキーボード入力から解放してくれるかもしれない。

2006年3月16日 18:00 WIRED NEWS (2006/03/16)

無線タグに入り込むウイルス、研究者が試作

<http://hotwired.goo.ne.jp/news/20060316302.html>

蘭アムステルダム自由大学の研究チームは、極小無線タグにコンピュータ・ウイルスを植え付けるのに成功したと発表。読取り機を通

じて他の無線タグに感染が広がるため、パソコンウイルスに匹敵する威力を持つ。

Week of March 20, 2006 For the full text go to: [SatNews Weekly](#)

- ... [Canada's Ciel Satellite Contracts Alcatel Alenia to Build Ciel-2 Satellite](#)
- ... [National Geospatial-Intelligence Agency Awards \\$12-M ClearView Contract to DigitalGlobe](#)
- ... [ICO North America Taps ILS Atlas V to Launch Its GEO Satellite in 2007](#)
- ... [ESA and CNES Sign Deal for Alphabus, Europe's Next-Gen Communications Satellites](#)
- ... [EchoStar 4Q Profit Soars to \\$133-M; Yearend 2005 Subscriber Reach 12.04-M](#)
- ... [EU and Russia Sign Space Cooperation Agreement](#)
- ... [PanAmSat Invests in Pegaso Banda Ancha as Broadband Takes off in Mexico and Across Latin America](#)
- ... [Malaysia's Measat Signs Contract for Land Launch](#)

2006年3月22日 22:58 DAILY NEDO[2006/03/22]

NEDO 海外レポート 975 号

<http://www.nedo.go.jp/kankobutsu/report/index.html>

【電子・情報通信技術特集】 リチウムイオン電池をより長くより安全に働かせる方法を探求 (米国)

<http://www.nedo.go.jp/kankobutsu/report/973/973-04.pdf>

2006年3月17日 22:59 DAILY NEDO[2006/03/17]

NEDO 成果報告書 118 冊を技術情報データベースに追加

http://www.nedo.go.jp/database/newlist/new_list20060317.html

2006年3月21日 14:21 AstroExpo. com Top Weekly News

Business News

[NASA Awards Safety and Mission Assurance Contract](#)

[ATK Realigns Operations to Position Businesses More Closely Along Market Areas and Enhance Efficiencies](#)

[SPACEHAB Submits Proposal for NASA Space Station Logistics; Company Teams with Prominent Industry Experts to Commercially Provide Space Access Services](#)

[Space-Qualified Fault Tolerant 1394 Chipset for NPOESS Passes Demanding Tests](#)

International Space News

[International Space Station Status Report: SS06-010](#)

[Boehlert Statement on Shuttle Launch Delay](#)

[Re-Usable Clipper Spacecraft to be Introduced by 2015](#)

[Private Space - Times Have Never Been More Promising for Proponents of Commercial Spaceflight](#)

[Design of Earth Observation Satellite Constellation Awarded](#)

Launch News

[ICO North America to Launch Its Geo Satellite Using International Launch Services' Atlas V](#)

[NASA Expendable Launch Vehicle Status Report: E06-010](#)

[NASA's Space Shuttle Processing Status Report: S06-009](#)

[NASA Announces New Window For Next Space Shuttle Mission](#)

[Microscopic Radiator Flying on "Skin" of a NASA Spacecraft Set to Launch March 15](#)

[Orbital Set to Launch NASA's Space Technology 5 Spacecraft Aboard Pegasus Rocket](#)

[Another Successful Ariane Launch: SPAINSAT and HOT BIRDTM 7A in Orbit](#)

[Space Systems/Loral-Built SPAINSAT Communications Satellite Successfully Launched](#)

Aerospace Daily & Defense Report Mar 22, 2006

レイセオン:JCA(3軍統合貨物機)の提案要求に大きな驚きなし

Raytheon: No big surprises in Joint Cargo Aircraft RFP

The new request for proposals (RFP) for the Joint Cargo Aircraft (JCA) is largely the same as the draft RFP for the Future Cargo

Aircraft (FCA) released ...

BAE システムズは L-3 Communications Holdings の\$10B の買収提案を拒絶

BAE Systems denies \$10 billion bid for L-3 Communications Holdings

U.K.-based BAE Systems is denying a report in the British media that it is considering selling off its 20 percent stake in Airbus to

Funda\$10 ...

下院は C-17、プレデター予算承認、JSF エンジン予算を推進

House funds C-17s, Predators, pushes JSF engine funds

As part of its newly passed fiscal 2006 supplemental bill, the House would provide the Defense Department with an additional \$100

million that was not officially requested ...

中国の Cresda 資源観測衛星データ応用センタは 18 衛星のコーディネーションをまとめる

China's Cresda to lead coordination of 18 sats

CRESDA LEADS: The Chinese **Center for Resources Satellite**

Data & Application (Cresda) will lead the coordination of 18 new

Chinese land observation satellites planned for launch through . . .

空軍は米国の長距離防空レーダをアップグレード

Air Force upgrading U.S. long-range air defense radars

The U.S. Air Force and contractor Lockheed Martin are upgrading 33 long-range air defense radars located in the continental U.S.,

according to company officials. . . .

スペースコマンドは国防総省にミニットマン AOA 代替品分析をブリーフィング

Space Command briefing Pentagon on Minuteman AOA

Air Force Space Command (AFSPC) is briefing key Pentagon decision-makers on the results of its analysis of alternatives (AOA)

for replacing the Minuteman III intercontinental ballistic missile, . . .

LM チームは最新の A-10C ウェポン・ソフトを納入

LM team delivers latest A-10C weapons software

SMARTER A-10C: A Lockheed Martin Corp.-led industry team has delivered the latest software version of its Digital Stores

Management System (DSMS), a new weapons delivery system, to . . .

ノースロップは潜水艦支援で\$248M を契約

Northrop Grumman awarded \$248M for sub support

SUB WORK: Northrop Grumman Corp. said March 20 that it was awarded a \$248 million Navy contract to support the Los Angeles,

Ohio, Seawolf, and Virginia-class submarines . . .

ボーイングはイスラエルの Elta Electronics との競争で韓国の AWACs を失いかけている

JSA Research: Boeing losing South Korea AWACs

ELTA WINNING: The Boeing Co. is about to lose a competition to Israel Aircraft Industries subsidiary Elta Electronic Industries Ltd.

For four South Korean airborne early warning . . .

無人機プレデタがイラクで墜落

Predator crashes in Iraq

PREDATOR CRASHES: A U.S. military MQ-1 Predator unmanned aerial vehicle crashed in Iraq on March 21, the Defense Department

said. The UAV went down while operated by . . .

Aerospace Daily & Defense Report Mar 21, 2006

MKV 多重キルビークルの計画は予算カットでやや遅れる

Multiple Kill Vehicle program slowed slightly by budget cut

The Missile Defense Agency's (MDA) Multiple Kill Vehicle (MKV) program has been slightly slowed by a fiscal 2006 budget

cut handed down by Congress late last year, . . .

MBDA 社は EADS の買収の提案に警戒

MBDA officials cautious on EADS takeover proposal

Top executives at multinational European missile maker MBDA say a proposal by EADS to take a controlling interest in the company

might make good business sense. But . . .

STRATCOM 戦略コマンド司令官はミサイル防衛のチャレンジの概要を説明

STRATCOM chief outlines missile defense challenges

Marine Corps Gen. James Cartwright, commander of U.S. Strategic Command (STRATCOM), described the command and control

challenges associated with ballistic missile defense during a speech in Washington . . .

ISS クルーはソユーズ・ビークルに移動

ISS crew moves Soyuz vehicle

The two-man crew of the International Space Station took a brief excursion in their Soyuz TMA vehicle early yesterday, donning

死亡事故はKSC ケネディ宇宙センタの安全性の懸念を増す

[Death to elevate KSC safety concerns](#)

The death of a roof repairman at Kennedy Space Center on March 17, one day after the center held a safety "stand down" to review

ロッキードマーチンはFBI にコンピュータ・ネットワークを提供

[Lockheed Martin to provide FBI with computer network](#)

LM WIN FBI CONTRACT: Lockheed Martin, which has aggressively been expanding its information technology work,

Falcon 1 打上げは少なくとも2日遅れた

[Falcon 1 launch delayed at least two days](#)

LAUNCH DELAY: Space Exploration Technologies is delaying the Falcon 1 launch attempt at the Kwajalein Atoll this week for at least

Russian launch and entry suits to shift ...

safety procedures, ...

recently nabbed the FBI's \$305 million, six-year Sentinel contract. Much like the ...

two days. Controllers ran the rocket ...

[Aerospace Daily & Defense Report Mar 20, 2006](#)

ボーイングはSBX レーダ・ウェポン効果技法に関して口を閉ざす

[Boeing mum on SBX radar weapon effects techniques](#)

RADAR WEAPONS: Boeing missile defense officials refuse to answer questions about whether they are developing techniques to

科学者グループは先制核攻撃戦略に懸念

[Scientist group concerned about pre-emptive nuke strategy](#)

NUCLEAR USE: The White House's latest National Security Strategy strengthens the role of nuclear weapons in pre-emptive

JPL は火星オデッセイ画像をシミュレーション用に統合

[JPL merges Mars Odyssey images for simulation](#)

ODYSSEY IMAGES: Hundreds of images from NASA's Mars Odyssey orbiter have gone into a new simulated flyover of the

Dawn アステロイドミッション中止の報告予定

[Review of Dawn asteroid mission cancellation due](#)

CANCELLATION REVIEW: Rex Geveden, who oversees all technical operations at NASA as associate administrator, expects to

アルカテル、EADS アストリウムは宇宙配備危機管理をデモ

[Alcatel, EADS Astrium demonstrate space-based crisis management](#)

HELP FROM ABOVE: In Poland, Alcatel and EADS Astrium have demonstrated the role that space-based systems can play in

ST5 打上げ3月22日に設定

[ST5 launch set for March 22](#)

ST5 SLIP: NASA is now targeting March 22 to launch three ST5 spacecraft, hoping that will be enough time for engineers to figure

OAV オーガニック・エア・ピークル II 業者選定4月に予想される

produce high-energy weapon effects from their SBX sea-based radar. However, ...

military strikes against terrorists and hostile states armed with chemical, ...

planet's huge Valles Marineris canyon produced by JPL ...

report this week on his review of the agency's March 2 ...

European crisis management. A 2 million euro (\$2.4 ...

out why a fin-locking ...

Organic Air Vehicle II downselect expected in April

The final downselect for the Defense Advanced Research Projects Agency's (DARPA) Organic Air Vehicle II (OAV II) program is

expected in early April, according to a spokesman . . .

GAOはグローバルホークの生産を限定するよう推奨

GAO recommends limiting Global Hawk production

The Government Accountability Office (GAO) is recommending that the Department of Defense limit production of the Air Force's

Global Hawk unmanned aerial vehicle (UAV) until the program . . .

House passes supplemental, adds money for troop vehicles

SUPPLEMENTAL: The House late March 16 passed its version of the second fiscal 2006 supplemental for military operations in Iraq

and Afghanistan and for hurricane relief, including . . .

NASA はロボットアームの事故で調査委員会を立上げ

NASA forms investigation panel for robotic arm mishap

ARM INVESTIGATION: NASA has formed a board that will investigate the March 4 accident that damaged the shuttle

Discovery's robotic arm. Hugo Delgado, deputy director for the . . .

スタディ:航空宇宙、防衛の企業は省庁向け IT セクタで統合を推進

Study: Aerospace, defense firms drive M&As in fed IT sector

A new analysis is putting some numbers behind the widely-held view that aerospace and defense companies are the driving force

behind robust mergers and acquisitions (M&A) activity . . .

国防総省は 2006 年度の ACTD 先進概念技術実証と JCTDS3 軍ケーパビリティ技術実証を発表

Pentagon announces fiscal 2006 ACTDs, JCTDS

The Pentagon announced its fiscal 2006 Advanced Concept Technology Demonstrations (ACTDs) as well as its first-ever Joint

Capability Technology Demonstrations (JCTDs) on March 16. . . .

ジェネラル・アトミックスは EMALS 電磁的航空機発射システムへの変更契約で\$6M を得る

General Atomics gets \$6M for changes to EMALS

EMALS CHANGES: The Navy has awarded \$6 million more to General Atomics for two proposed changes to the Electromagnetic

Aircraft Launch System (EMALS), the Defense Department announced . . .

Aerospace Daily & Defense Report Mar 17, 2006

F-22 承認に先立ち、空軍は下院を説得する必要あり

Weldon wants details before F-22 approval

The Air Force has to convince a House subcommittee that Lockheed Martin Corp.'s F-22 Raptor design is stable, as well as

provide other required analysis, before it . . .

米国は中国のラテンアメリカに対する提案に懸念

U.S. concerned with China's overtures toward Latin America

China, already identified by the Pentagon as a potential future military rival, is making inroads with Latin American's militaries by

supplying training and equipment, the head of . . .

2008 年度の空軍の予算は即応宇宙(Responsive Space)に重点、Sega 空軍次官発言

FY '08 AF budget to stress responsive space, Sega says

The fiscal 2008 Air Force budget will put greater emphasis on operationally responsive space (ORS) systems, Undersecretary Ron

Sega told lawmakers during a hearing on Capitol Hill . . .

海軍はさらに多くの潜水艦事業を見出す助けとするため RAND のスタディを待つ

Navy awaits RAND study to help find more sub work

The Navy is awaiting a RAND Corp. study to help it find more submarine design work to keep experienced General Dynamics

workers and others employed so they . . .

米議会、国防総省は JSF の代替エンジンに関して争う

Congress, Pentagon battle over JSF alternative engine

Congress and the Pentagon are butting heads over who has the right to control the fate of the Joint Strike Fighter's alternative engine

program. . . .

共和党 Forbes 議員はさらに多くの空母保有を推進

Forbes pushes for more aircraft carriers

Rep. Randy Forbes (R-Va.) says he has accepted the Navy's proposed early retirement of the USS John F. Kennedy aircraft

carrier, but financial constraints aside, the need . . .

Aerospace Daily & Defense Report Mar 16, 2006

共和党 Stevens 上院議員は価格問題を避けるため米国 UAV 計画を求める

Stevens calls for national UAV program to avoid costs

Sen. Ted Stevens (R-Alaska), chairman of the Senate Appropriations defense subcommittee, criticized Pentagon leaders

March 15 for seemingly devolving unmanned aerial vehicle (UAV) efforts, such as turning . . .

シャトル風洞試験が Ames, Glenn 両センタで進行中

Shuttle wind tunnel tests under way at Ames, Glenn centers

Wind tunnel tests are under way at Ames Research Center and Glenn Research Center to ensure that the removal of foam from

certain areas on the space . . .

機械的問題で ST-5 打上げ遅れ

Mechanical problem delays ST-5 launch

Problems pulling control-fin locking pins on its Pegasus launch vehicle March 15 delayed the start of NASA's ST-5

constellation-control mission for at least 48 hours. . . .

米国は価格上昇をカバーするため FMS 代金を急激に上げる

U.S. hiking FMS fees to cover rising costs

Facing a looming trust fund shortfall, the U.S. Defense Security Cooperation Agency is boosting what it charges contractors for

Foreign Military Sales cases by nearly a third, . . .

異なる星のタイプが異なる太陽系を形づくるかもしれない

Different types of stars may form different solar systems

Astronomers are coming to believe that different types of stars form different types of solar systems, based in part on the discovery of a

large rocky planet . . .

ISS の技術者は新しい連結ポートにソユーズを移動させることに

ISS engineer to move Soyuz to new port

International Space Station Flight Engineer Valery Tokarev was scheduled to undock the Soyuz vehicle that brought him and ISS

Expedition 12 Commander Bill McArthur and move it . . .

オンライン投票結果： 軍事発明と宇宙探査は医療科学の次の優先順位

Poll: military, space inventiveness low priorities

An online survey commissioned by a major U.S. advertising agency has ranked military and weaponry inventiveness and space

exploration second and third, respectively, to medical science in . . .

当局：「特殊作戦にさらに予算を」は進展中

Official: more money for special ops means progress

Terrorist operations require funding and the U.S. Central Command has a unit trying to interrupt that revenue stream, according to

Thomas O'Connell, assistant secretary of defense for . . .

カナダのMDA社は衛星3機によるレーダ・コンステレーションをスタディする予定

Canada's MDA will study three-satellite radar constellation

C-BAND COMPLEMENT: The Canadian Space Agency has awarded McDonald, Dettwiler Associates a contract worth \$7

million Canadian dollars (\$6.7 million) to carry out conceptual design and definition

ジェネラル・アトミックス航空システム社は\$30.1Mのブレダタの改修契約を勝取る

General Atomics-Aeronautical Systems Inc. wins Predator contract

PREDATOR WORK: San Diego-based General Atomics-Aeronautical Systems Inc. has been awarded a \$30.1

million contract modification to perform organizational maintenance on Predator unmanned aerial vehicles, as well . . .

2006年3月21日 人民網日本語版

プーチン大統領、北京到着 公式訪問を開始

胡錦濤国家主席の招待により、ロシアのプーチン大統領が21日北京に到着(写真)、2日間の予定の公式訪問を開始した。(編集CS)



2006年3月21日 人民網日本語版

「米の安全保障報告は誤り」中国が嚴重な申し入れ

外交部の秦剛報道官は20日の記者会見で、記者からの質問に答える中で、米国が発表した「国家安全保障戦略報告」中の、中国に関する誤った記述について強い不満を表明し、すでに米国に嚴重な申し入れを行ったことを明らかにした。記者との一問一答は次のとおり。

米政府はこのほど「国家安全保障戦略報告」を発表し、中国がアジアの巨大な経済の成果を象徴していると述べる一方、中国に非難も加えている。中国はこれをどう論評するか。

米政府が発表した「国家安全保障戦略報告」は、中国と米国の間の多くの共通利益について述べ、両国は協力を強化し、テロの防止や大量破壊兵器の拡散防止など多くの課題に対応すべきだとしている。また一方では、基本的な事実を無視して、中国の内政や対外政策、発展の方向などについて勝手に論じ、理不尽な非難を行い、中国の内政に干渉している。中国は、米国のこうした誤った行為に強い不満を表明する。また、米国にはすでに嚴重な申

し入れを行った。

中国は、世界平和を維持し、共同发展を促進する重要なパワーだ。中国の対内的・対外的政策や発展の方向は、早くから決まっていたものであり、それはつまり、中国の特色ある社会主義の道と平和発展の道を断固として歩み、独立自主の平和外交政策を堅持し、世界各国とともに平和で友好的かつ協力的な、調和の取れた世界を築くため力を注ぐということだ。改革開放からの28年間、中国の経済と社会の発展は大きな成果を得た。国民の生活は改善を続け、市民は落ち着いて生業に励み、国民が享受するさまざまな人権の水準は向上し続けている。中国は防御型の国防政策を実施しており、限りある国防力はまったく自衛目的に過ぎない。中国が平等互惠を前提として、世界各国との経済協力やエネルギー協力を実施していることは、まったく正当であり、非難すべきことはない。中国の発展は、アジア太平洋地域や世界全体にかつてない好機をもたらす、世界平和の保護と共同发展の促進に大き

く貢献している。これは、誰の目にも明らかな事実であり、このことは国際社会で広くプラスに評価されている。中国の平和発展や、アジア太平洋や世界の問題について果たしているプラスの役割については、自ずと公論があり、これはいかにわい曲しようが非難しようが、変えることはできない。

指摘すべきこととして、中国政府の台湾問題解決に対する方針は、一貫しており、明確であり、確固たるものだ。われわれは、最大の誠意と努力を尽くして、台湾問題の平和的解決に向け努力するが、「台湾独立」は決して容認せず、いかなる人物がいかなる形で台湾を中国から分割することも、決して許さない。米国は、「一つの中国」の政策の堅持、中米間の3つの共同コミュニケの順守、「台湾独立」への反対という約束を順守すべきであり、「台湾独立」を

掲げる分裂勢力に誤ったシグナルを発してはならず、実際の行動で台湾海峡の平和と安定、および中米関係の大局を守るべきだ。

中米両国の建設的協力関係の発展は、両国と両国国民の共通の利益に合致し、アジア太平洋地域ないしは世界の平和・安定・繁栄に役立つ。われわれは、米国が中国の対内的・対外的政策と平和発展を客観的かつ公正に評価し、中米関係の健全な発展、相互信頼の増進、地域の平和・安定・発展の促進などにマイナスになる言論の発表を止め、関連の報告や言論によるマイナス影響を取り除くよう対策を講じてほしい。これにより、21世紀の中米両国の建設的協力関係を全面的に推進するという、両国首脳の共通認識を実際の行動で実行し、中米関係の健全かつ安定した発展と両国の共通の根本的利益を守るよう望む。(編集 SN)

[国際関係・一般]

来月20日に米中首脳会談

フジサンケイビジネスアイ 06年03月24日 朝刊 16面 1段 2022

パキスタン 核搭載可能、ミサイル実験

産経新聞 06年03月22日 朝刊 7面 2段 2692

自民党の対北朝鮮経済制裁シミュレーションチーム 資金洗浄で情報交換

毎日新聞 06年03月22日 朝刊 5面 1段 2525

自民党拉致対策本部の対北朝鮮経済制裁シミュレーションチーム 北朝鮮の資金洗浄で調査

日本経済新聞 06年03月22日 朝刊 2面 1段 2592

防衛施設庁の北原巖男長官が方針 戦闘機訓練分散一部2006年度から

日本経済新聞 06年03月22日 朝刊 2面 1段 2588

[宇宙・航空・科学]

視点=JAXA、スクラムジェット噴射器実証 28日、マッハ8飛行実験 日本の技術力アピール

日刊工業新聞 06年03月24日 朝刊 3面 3段 写 0019

宇宙航空研究開発機構 小型超音速実験機を公開

日刊工業新聞 06年03月22日 朝刊 19面 1段 1763

宇宙航空研究開発機構 28日に豪州で 20年後のロケット エンジンの飛行実験

日経産業新聞(日経テレコン21) 06年03月22日 朝刊 11面 3段 2968

宇宙航空研究開発機構 新型エンジン飛行実験へ

日本経済新聞 06年03月21日 朝刊 42面 1段 0491

石川島播磨重工業など共同開発のジェットエンジン 最大離陸推力36トンを達成

日刊工業新聞 06年03月24日 朝刊 8面 1段 0054

石川島播磨重工業 米ゼネラルエレクトリックなどと共同 新型航空機エンジン公開

フジサンケイビジネスアイ 06年03月24日 朝刊 8面 2段 写 1982

石川島播磨重工業など5社開発 ジェットエンジン「GENX」 目標の推力達成

日経産業新聞(日経テレコン21) 06年03月24日 朝刊 12面 2段 写 2404

石川島播磨重工業 エンジン推力目標値を達成

電気新聞 06年03月24日 朝刊 4面 1段 0493

米シャトル発射延期 宇宙基地への影響日本は真剣対応を

読売新聞 06年03月22日 朝刊 15面 3段 写 2480

富士重工業 戦闘ヘリAH-64D 宇都宮に製造ライン 国産化率引き上げ

日刊自動車新聞 06年03月22日 朝刊 1面 3段 1963

[宇宙利用・宇宙からの観測・宇宙環境利用・宇宙実験]

国立天文台 次期台長に観山正見氏選出

日刊工業新聞 06年03月24日 朝刊 35面 1段 写 0238

宇宙誕生後の急膨張 NASAが裏付け観測

毎日新聞 06年03月22日 朝刊 15面 1段 2555

洋上インターネット時代幕開け 宇宙通信のブロードバンドサービス「飛鳥2」に提供

フジサンケイビジネスアイ 06年03月22日 朝刊 1面 4段 写 2816

[防災・環境・資源・エネルギー・リスクマネジメント]

欧州委員会 航空会社92社運航禁止 「ブラックリスト」承認

フジサンケイビジネスアイ 06年03月24日 朝刊 12面 1段 2000

日本航空整備ミス チェック体制甘さ浮き彫り 「特殊ケース」強調

毎日新聞 06年03月24日 朝刊 30面 4段 写 1489

日航点検忘れ 発覚後検査にも不備 国の指摘まで気付かず

日本経済新聞 06年03月24日 朝刊 42面 4段 1700

日航、また注意処分 検査忘れMD87機 点検すれば手抜き

東京新聞 06年03月24日 朝刊 31面 6段 写 1931

日航ニアミス 東京地裁 2管制官に無罪判決 「誤指示が原因」否定 「複合事故」問われる安全策

東京新聞 06年03月21日 朝刊 1面 5段 図 0596

日航機ニアミス 管制官無罪判決 後絶たぬうっかりミス 空の過密化「能力ギリギリ」

朝日新聞 06年03月21日 朝刊 39面 5段 0094

スキャナー = 日航機ニアミス「無罪」 システム不備浮き彫り 事故当時管制官とTCAS指示食い違い

読売新聞 06年03月21日 朝刊 3面 4段 写図 0113

社説 = 日本の空に「安全・安心」の回復を

日本経済新聞 06年03月21日 朝刊 2面 3段 0307

自動車大手 最先端技術取り入れ開発 「予防安全」対策を活発化

フジサンケイビジネスアイ 06年03月22日 朝刊 8面 4段 2846

日本上下水道設計 地震、浸水対策で技術営業 資産管理の視点加味

建設通信新聞 06年03月22日 朝刊 2面 5段 2057

[技術・産業]

TrendFocus トレンド=ワーク編 川崎重工業 地雷除去車の開発 社会貢献で技術もアピール

東京新聞 06年03月24日 朝刊 8面 4段 写 1872

オートデスク 製造業向け3次元CAD市場投入 解析、配管・配線を強化

日刊工業新聞 06年03月24日 朝刊 8面 3段 0053

アルプス電気 携帯機器用燃料電池向けマイクロポンプとマイクロバルブ開発進める

電波新聞 06年03月24日 朝刊 5面 3段 写表 0301

日本テキサス・インスツルメンツ 5ミリ角のLVDSシリアライザ/デシリアライザ量産

電波新聞 06年03月24日 朝刊 5面 2段 0300

地域・中小企業 = クリプトン 高級スピーカー、一般向けも 熟練シニア集団 ニッチ戦略の要

日経産業新聞(日経テレコン21) 06年03月24日 朝刊 26面 7段 写 2479

札幌市の企業連合 廃タイヤで電磁波シールド材開発、販売へ ゴムチップ炭化・メッキ処理

化学工業日報 06年03月24日 朝刊 3面 3段 0394

旭硝子 大画面FED向け新パネル構造開発 スペース不要に

化学工業日報 06年03月24日 朝刊 8面 4段 0415

日立製作所 ナノインプリント事業化へ グループ内で組織連携 装置、加工品も展開

化学工業日報 06年03月24日 朝刊 11面 5段 写 0441

用語解説 = フォトマスク

電波新聞 06年03月24日 朝刊 6面 1段 0316

デジタルテレビ特集 各社の製品/販売戦略 パイオニア マスプロ電工 富士通ゼネラル DXアンテナ

電波新聞 06年03月24日 朝刊 20面 7段 写 0338

デジタルテレビ特集 各社の製品／販売戦略 リーダー電子 菅電

電波新聞 06年03月24日 朝刊 21面 3段 写 0339

デジタルテレビ特集 各社の製品／販売戦略 八木アンテナ サン電子 日本アンテナ

電波新聞 06年03月24日 朝刊 22面 7段 写 0340

仏オプティクス 照明解析ソフト 光学・機械設計可能に 3次元CAD組み込み

日刊工業新聞 06年03月22日 朝刊 7面 3段 1692

実装技術特集 実装機 輸出が伸び牽引 中速・普及機が拡大傾向

電波新聞 06年03月22日 朝刊 5面 6段 写図表 1795

海外ハイテクフラッシュ＝フィンランドのヘルシンキ大学の研究グループ降雪量予測するレーダ開発

日経産業新聞(日経テレコン21) 06年03月22日 朝刊 11面 1段 2972

アークレイ 研究開発員200人に倍増 バイオ関連 検査装置拡充へ

日経産業新聞(日経テレコン21) 06年03月22日 朝刊 13面 5段 写 2976

ISMI 450ミリウエハー具体化へ 来年にも仕様策定 2012年導入見通し

化学工業日報 06年03月22日 朝刊 10面 5段 写 1891

アナログ・デバイスズ 初の差動出力型デュアルチャンネル計装アンプ高性能で4ミリ角

電波新聞 06年03月21日 朝刊 5面 2段 写 0873

用語解説＝産業用水晶振動子

電波新聞 06年03月21日 朝刊 5面 1段 0877

ユーデック ソフト発売 群集をシミュレーション

日本情報産業新聞 06年03月20日 朝刊 5面 1段 1117

日大が開発 統合失調症の判定装置 精度7割 医師の診断補助

日経産業新聞(日経テレコン21) 06年03月22日 朝刊 11面 4段 写 2965

[通信・放送・IT・セキュリティ]

NHK FM文字放送、来春終了

日本経済新聞 06年03月24日 朝刊 12面 1段 1610

NHK 衛星アナログハイビジョン来年に放送終了

東京新聞 06年03月24日 朝刊 17面 2段 1900

外務省 外務次官室、携帯電話禁止に

日本経済新聞 06年03月24日 朝刊 2面 1段 1522

竹中懇「NHK改革」2大論議の背景と展望は 国際放送の財源 チャンネル数削減

東京新聞 06年03月22日 朝刊 17面 7段 写 2789

総務省 無線システム普及支援事業の交付先決定 東北管内では合計13回線

電波新聞 06年03月22日 朝刊 11面 3段 1816

携帯電話用新規電波 総務省方針 ソフトバンクに返上要請 事業計画変更なら

産経新聞 06年03月21日 朝刊 2面 4段 0512

経産省・総務省 パソコン遠隔操作ウイルス「ボット」対策に着手

日刊工業新聞 06年03月21日 朝刊 1面 4段 0698

ニュースがわかる=ウィニー被害広がる 巧妙ウイルス防戦必死 知らぬ間に情報流出

日本経済新聞 06年03月22日 朝刊 13面 6段 写図 2638

新銀行東京と日立製作所 システム開発 融資申請にXBRL e-TAXなどで電子化

日本情報産業新聞 06年03月20日 朝刊 1面 3段 1072

WBC日韓戦 瞬間最高視聴率50.3% 平均は36.2%

電波新聞 06年03月21日 朝刊 2面 2段 0840

WBC準決勝平均視聴率 今年、全番組で最高 久しぶり野球に注目

東京新聞 06年03月21日 朝刊 15面 3段 0659

[経営・人]

エアバス グスタフ・フンベルト社長 「中国で工場建設を検討」

朝日新聞 06年03月24日 朝刊 12面 4段 写 1224

エアバスCEO 開発・生産工程と素材、客室 日本と共同研究へ

日本経済新聞 06年03月24日 朝刊 13面 3段 写 1613

異議あり匿名社会 英米の現状(4) = 英情報コミッショナー委員会 デビッド・スミス氏に聞く(おわり)

読売新聞 06年03月24日 朝刊 38面 5段 写 1374

米ボーイング、上昇気流 予想上回る受注、株価最高値 787型機増産検討 部品各社に具体的打診

日経産業新聞(日経テレコン21) 06年03月24日 朝刊 4面 5段写図表 2355

成長持続へ 工作機械各社の戦略(20) = 森精機製作所社長 森雅彦氏に聞く インド・米国に販売拠点新設

日刊工業新聞 06年03月24日 朝刊 8面 4段 写 0048

外食経営者列伝 個性派たちの軌跡(4) = 際コーポレーション社長 中島武氏 斬新・奇抜で300店

日経流通新聞M|(日経テレコン21) 06年03月24日 朝刊 19面 5段 写 2589

特殊鋼好況下の防衛戦(上) = M & A対策で予防線 外資に対抗国内連携進む 技術・流通網囲い込み急ぐ

日経産業新聞(日経テレコン21) 06年03月24日 朝刊 15面 4段 写図 2423

なるほど講座 = 株主権利の確定 配当が3年連続過去最高 特典ゲットには手続き必要

フジサンケイビジネスアイ 06年03月24日 朝刊 7面 6段 図 1968

満足度覆面調査 病院、銀行も委託 客と思えば“忍びの者”

毎日新聞 06年03月24日 朝刊 8面 6段 1442

ブラザー工業 中期経営計画 研究開発費1000億円に 買収防衛策も導入

日経産業新聞(日経テレコン21) 06年03月24日 朝刊 12面 3段 2402

やさしい経済学 21世紀の国際公共財(5) = 放送大学教授 林敏彦 周波数割り当て

日本経済新聞 06年03月22日 朝刊 21面 2段 2642

米ITTキャノンの事業戦略 ジョン・ファイファー副社長に聞く アジア市場 売上げ240億円を計画

電波新聞 06年03月22日 朝刊 4面 4段 写 1788

世界のナノ材料・関連機器・装置市場 2010年には42億ドル強へ ルバープ・シート氏に聞く

電波新聞 06年03月22日 朝刊 8面 5段 写図 1799

電温の広島支社 オール電化機器のリースに注力 18年度は月平均30件めざす

電波新聞 06年03月22日 朝刊 11面 3段 写 1814

全日空・郵政公社設立 貨物航空会社 社長に清野端一氏

河北新報 06年03月21日 朝刊 10面 1段 1379

全日空新会社 貨物航空社長 清野端一氏就任へ

中国新聞 06年03月21日 朝刊 9面 1段 写 1555

[航空輸送・エアライン]

社説 = 新北九州空港 これも「無駄」とは言わないが

読売新聞 06年03月21日 朝刊 3面 3段 0115

成田国際空港 新ターミナルのテレビCM放映

日経産業新聞(日経テレコン21) 06年03月22日 朝刊 24面 1段 写 3057

6月完成 成田新ビルで初CM 菊川怜さんを起用

フジサンケイビジネスアイ 06年03月21日 朝刊 25面 3段 写 1038

羽田行き全日空便、中部空港に着陸 氷結防止機器故障か

中日新聞 06年03月20日 朝刊 31面 2段 写 1422

航空会社サービス続々 マイレージ進化 インターネットと融合、「陸マイラー」も

産経新聞 06年03月21日 朝刊 3面 6段 写表 0517

[民間航空機関連 (ex-SJAC 三輪さん)]

2006年3月23日 2:23 AIA dailyLead March 22, 2006 -

人の感情的反応はその事象に関するその人の知識による - 少なければより過激になる

"The degree of one's emotion varies inversely with one's knowledge of the facts -- the less you know the hotter you get."

--Bertrand Russell, Nobel laureate in literature

2006年3月22日 2:10 AIA dailyLead March 21, 2006 -

マネジメントとは他の人をいかに動機付けるか やる気にさせるか 以外の何ものでもない

"Management is nothing more than motivating other people."

--Lee Iacocca, American industrialist

2006年3月23日 2:23 AIA dailyLead March 22, 2006 -

ロケット改造計画でゼネラルダイナミクスは下請け受注か

General Dynamics may win rocket subcontract worth \$1B

General Dynamics is close to securing a subcontract to upgrade rockets worth \$1 billion, a company spokesman said. **Lockheed Martin**, **Raytheon** and

アロハ航空ボーイング737新機6機購入

Aloha Airlines to get six new Boeing 737s

Aloha Airlines is replacing almost one-third of its interisland fleet. The airline will receive the first of six

RFID 読取方式の採用で航空会社のコスト節減か

Airlines could save millions with RFID tags, but implementation uncertain

Radio frequency identification technology significantly improves reading accuracy compared to barcode scanners, but the cost impacts implementation. Some experts have suggested the cost will have to drop below 5 cents to make the equation economically

デルタ航空の大幅減給は根拠なしとパイロット組合

Delta does not need deep cuts, pilots union says

Delta Air Lines' pilots union said the carrier does not need the \$325 million in cuts it wants from the

BAE Systems are bidding on the prime contract. [The Denver Post](#) (3/22)

new **Boeing** 737-200s next month. [The Honolulu Advertiser \(Hawaii\)](#) (3/22)

feasible. **Airbus**, **Boeing**, **Embraer** and **Bombardier** have agreed to a common RFID standard within the aviation supply chain to identify and track parts and components. [Air Transport World](#) (3/22)

workers. An economic expert hired by the union told an arbitration panel Delta faces less competitive pressure than other major airlines. The carrier says it

needs the cuts to survive. [St. Paul Pioneer Press](#) | [\(Minn.\)/Associated Press](#) (3/22)

2006年3月22日 2:10 AIA dailyLead March 21, 2006 -

BAE社、L-3社買収計画はないこと、エアバスの持株売却の計画も否定

BAE says it will not bid for L-3 Communications

BAE Systems has no plans to bid for L-3 Communications Holdings, a spokesman said, denying a media report. BAE also said it does not

plan to sell its stake in Airbus. Chicago Tribune (3/21)(Embedded image moved to file: pic04678.gif)

USエア航空とアメリカンウェスト航空合併計画推進

Experts praise progress in US Airways-America West merger

The merger of US Airways and America West is drawing praise from some industry observers. Chief Executive Doug Parker is carefully combining the company's employee groups. "We've certainly gotten through enough stuff that we have confidence that what's left is manageable," Parker said. "We've

climbed a bit of the mountain, and the rest is sort of the same grade." US Airways saw its revenue per available seat mile increase 16% in the fourth quarter. Travel Weekly (3/20), Pittsburgh Tribune-Review (3/19)(Embedded image moved to file: pic22593.gif)

エアライン更なる統合再編成への動き

Airlines may be poised for more consolidation

The airline industry may experience more consolidation, some experts say. Carriers have reduced their costs, and three of the six major carriers are in bankruptcy protection. Mesa Air Group

Chief Executive Jon Ornstein said the industry is near the end of a cycle of bankruptcies that resulted from high fuel costs and competition. The Street.com (3/21)(Embedded image moved to file: pic23851.gif)

デルタ航空4月予約減少状況の見通し

Delta bookings drop in April, May, CEO says

Bookings at Delta Air Lines have dropped because of the threat of a pilots strike, said Chief Executive Gerald Grinstein, who noted bookings for April and May are below normal levels. Delta's pilots said they may strike if an arbitration panel allows the carrier to

void their contract, but Grinstein believes a settlement on a new labor contract will be reached this spring. The Wall Street Journal (3/21), Journal and Constitution (Atlanta) (3/21), Air Transport World (3/21)(Embedded image moved to file: pic25484.gif)

[新刊広告] 月刊誌「世界の艦船」 2006年5月号

月刊誌「世界の艦船」2006年5月号絶賛好評発売中。本号は「近未来の空母」特集。2020年代の空母勢力はどのようになるのか。世界最強の米海軍の次期空母の動向は？経済発展が著しく、国防費の伸びが急上昇の中国は空母を建造するのか、などなど話題沸騰。美麗写真も豊富。定価1,000円。☆多田智彦☆



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以下 ST-5 関係 from Boeing (Rick Hashimoto)

Wednesday March 22, 11:58 am ET Press Release Source: NASA

ST-5 打上げ成功

NASA's Space Technology 5 Satellites Soar Into Space

WASHINGTON, March 22 -- NASA's [Space Technology 5](#) successfully launched today at 9:04 a.m. EST, from Vandenberg Air Force Base, Calif., on a [Pegasus XL rocket](#).

[ST5](#) is testing new **micro-spacecraft technologies** and operations' techniques. The three spacecraft will conduct science validation using measurements of the Earth's magnetic field collected by the miniature boom-mounted magnetometers on each.

Initial contact with [ST5](#) was made at 9:27 a.m. EST, as the spacecraft passed over the McMurdo Ground Station in Antarctica. Art Azarbarzin, [ST5](#) project manager at NASA's Goddard Space Flight Center, Greenbelt, Md., described next week's planned activities for the spacecraft. "During the first day, we ensure the three craft are correctly operating. During the next few days, we deploy and test the magnetometer booms. Finally we prepare them

for the science demonstration and make any necessary orientation adjustments," Azarbarzin said.

Miniaturized components and technologies are integrated into each of the **ST5 micro-satellites**. Each **micro-satellite** weighs approximately 25 kilograms (55 pounds) when fully fueled and is about the size of a 13 inch television.

Jim Slavin, **ST5** project scientist at Goddard said, "The lessons learned from the development and flight of **ST5's** three full-service **micro-spacecraft** constitute a major step toward the use of **constellations** or **swarms of small spacecraft** to accomplish science that cannot be done with a single spacecraft, no matter how capable."

Although small compared to their counterparts, each of the spacecraft is considered full service. They contain power, propulsion, communications, guidance, navigation and control functions found in larger spacecraft.

For information about the **ST5** project and mission on the Web, visit: <http://www.nasa.gov/st5>

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Press Releases Contact: Barron Beneski, (703) 406-5000, beneski.barron@orbital.com

オービタル・ペガサス・ロケットは NASA の ST-5 宇宙機の打上げ成功

Orbital's Pegasus Rocket Successfully Launches NASA's Space Technology 5 Spacecraft

ST5 Mission was 37th Launch in the Pegasus Program's 16-Year History and 23rd Consecutive Successful Flight Since 1997 (Dulles, VA 22 March 2006) - Orbital Sciences Corporation (NYSE: ORB) announced today that its Pegasus(r) space launch vehicle successfully launched three small scientific spacecraft for the National Aeronautics and Space Administration's (NASA's) **Space Technology 5 program (ST5)**. In a mission that took place earlier today from Vandenberg Air Force Base, California, the three 55-pound **ST5** spacecraft were accurately delivered into their targeted elliptical orbits approximately 300 by 4,570 kilometers above the Earth at an inclination of 105.6 degrees

About Pegasus

Pegasus is the world's leading launch system for the deployment of small satellites into low-Earth orbit. Its patented air-launch system, in which the rocket is launched from beneath Orbital's "Stargazer" L-1011 carrier aircraft over the ocean, reduces cost and provides customers with unparalleled flexibility to operate from virtually anywhere on Earth with minimal ground support requirements. For the **ST5** mission, Orbital employed a unique satellite deployment system called the Pegasus Support Structure, which is a

The spacecrafts' orbit is a "string of pearls," in a near-Earth polar elliptical that will take them from approximately 300 kilometers (190 miles) to 4,500 kilometers (2,800 miles) from the planet.

They start out only a few meters apart. Within approximately 20 days, they are placed into a **formation** 40 to 200 km (approximately 25 to 125 miles) apart from each other to perform coordinated multi-point measurements of the Earth's magnetic field. This type of measurement is useful for future missions that will study the effect of solar activity on the Earth's magnetosphere; the magnetic bubble that surrounds Earth and helps to protect it from harmful space radiation.

The **ST5** project was built and tested at Goddard for NASA's Science Mission Directorate. It is an instrumental part of the **New Millennium Program**, which develops and tests critical and revolutionary technologies needed to enable future endeavors in space.

to the equator. Preliminary data from the satellites indicate that all three NASA-built spacecraft are operating as expected early in their mission.

The powered flight sequence for the **ST5** mission took approximately 10 minutes, from the time the Pegasus rocket was released from its L-1011 carrier aircraft at 9:04 a.m. (EST) to the time that the first of the three satellites were deployed into orbit. The remaining two **ST5** satellites were then deployed at three-minute intervals. Today's mission was the 37th launch of the Pegasus rocket and its 23rd consecutive successful mission.

spring-loaded mechanism that intentionally spins the satellites at preset time intervals in order to create a **formation-flying** group of spacecraft in low-Earth orbit. The **ST5** mission was the first flight of the Pegasus rocket in 2006. Later this year, Orbital is scheduled to launch NASA's Aeronomy of Ice in the Mesosphere (AIM) spacecraft, which is now in production at Orbital's Dulles, Virginia satellite manufacturing facility.

About ST5

NASA's New Millennium Program's **ST5** spacecraft consists of three **microsats** that are designed to validate, in actual flight conditions, innovative technology concepts that may reduce risks to future science missions. The **ST5** mission will demonstrate the

About Orbital

Orbital develops and manufactures small space systems for commercial, civil government and military customers. The company's primary products are satellites and launch vehicles, including low-orbit, geostationary-orbit and planetary spacecraft for communications, remote sensing and scientific missions; ground- and air-launched rockets that deliver satellites into orbit; and

(c)1996-2006 Orbital Sciences Corporation

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March 22, 2006 SPACEFLIGHT NOW BY JUSTIN RAY

小さなプローブが先進技術をテストするため打上げられた

Tiny probes launched to test advanced technologies

Three trail-blazing satellites were fired into Earth orbit this morning to prove if TV-sized probes can serve as formation-flying buoys for monitoring the weather of space and the enormous storms spawned by the sun.

NASA's high-risk **Space Technology 5** mission is spending \$130 million to test the concepts for building and operating miniaturized **microsats** before entrusting such techniques in science missions of the future.

"**ST5** is the first step in developing missions of tens or hundreds of small spacecraft that would look at phenomena such as space weather," said deputy project manager Candace Carlisle.

The storms in this "weather" are solar flares and massive eruptions on the sun called coronal mass ejections that churn across space and impact life on Earth by disrupting communications, interfering with spacecraft and knocking out power grids.

"Space weather is becoming quite important to us because of our increasing utilization and dependence upon space-based systems," said Jim Slavin, the **ST5** project scientist.

"Space-based assets, GPS satellites, communications satellites, all sorts of commercial and governmental systems, they are growing every year. Because they are very high altitude they often take the brunt of the space weather."

But researchers still are trying to understand the fundamentals of space weather, such as why a storm starts when it does and why

ability of small satellites to perform research-quality science by taking measurements of the Earth's magnetic field using highly sensitive magnetometers.

missile defense boosters that are used as interceptor and target vehicles. Orbital also offers space-related technical services to government agencies and develops and builds satellite-based transportation management systems for public transit agencies and private vehicle fleet operators. More information about Orbital can be found at <http://www.orbital.com>

some storms miss the Earth while others head right for us, Slavin said.

"For the purposes of space weather, we need to deploy literally tens or even a hundred space weather buoys in Earth orbit at a variety of distances in order to be able to arrive at a mature understanding of exactly what are the physical processes behind space weather, and then to use that understanding to be able to forecast it and eventually to mitigate against its effects. We are a space-based society whether we realize it all of the time or not."

The three **ST5** micro-sats were hauled into a highly elliptical orbit aboard an air-launched Pegasus rocket made by Orbital Sciences. The winged rocket was ferried off the coast of California and dropped from the belly of a modified L-1011 jet at 1403 GMT (9:03 a.m. EST; 6:03 a.m. PST) this morning.

With the push of a button in the aircraft's cockpit, the rocket was cast free to fall 300 feet in five seconds before the first stage motor ignited to begin the trek to space.

It took just over six minutes for the 37th Pegasus booster to fire all three of its solid-fueled stages to achieve an approximate orbit of 187 by 2,838 miles, inclined 105.6 degrees to the equator.

Release of the 55-pound micro-sats from the launcher occurred one by one from a special rack that supported them during the ride to space. The forward-most craft jettisoned about nine-and-a-half minutes into flight, followed by the middle and then the aft-most

during three-minute intervals.

NASA's Deep Space Network tracking stations in Madrid, Spain and Canberra, Australia were scheduled to establish contact with the **micro-sats** later in the day to determine their health and status.

Designers have packed several advanced technologies into the identical probes including: A low-power, low-weight Cold Gas Micro-Thruster to maneuver the spacecraft into different orbital arrangements during the 90-day mission.

An X-Band Transponder Communication System far smaller than current systems for two-way communications between the **micro-sats** and ground stations. Variable Emittance Coatings for Thermal Control that can change properties for either absorbing heat when cool or reflecting heat when warm.

The Complementary Metal Oxide Semiconductor Ultra-Low Power Radiation Tolerant Logic allows circuits to operate at 0.5 Volts and greatly reduce power consumption. The Low-Voltage Power System uses a low-weight lithium-ion battery with triple junction solar cells that can store up to four times as much energy as current nickel-cadmium ones. Other technologies include the mechanism and deployment boom holding the miniature magnetometer instrument on each **micro-sat**.

"There are 10 specific technologies on **ST5**. Each one is actually very generally applicable to a broad range of missions, and as a consequence spacecraft designers have 10 new tools to work with. And tools that are not only smaller, lower power and less expensive, but because of **ST5** they will have been proven in space. Therefore, they can be used with a high degree of confidence in future missions," said Ray Taylor of the Science Mission Directorate at NASA Headquarters.

"We're not narrowly focused on enabling one specific mission capability but rather investing our technology money in validation of technologies that are broadly applicable...to future missions," added Chris Stevens, manager of NASA's New Millennium Program that encompasses the **ST5** mission. NMP is best known for its first mission, Deep Space 1, which carried a dozen advance technologies including an ion engine.

But the most immediate use for swarms of tiny intelligent **micro-sats** working together in a constellation will be space weather studies, mission officials predict.

"When you look up at the sun and see the visible light that gives us daytime and feel the warmth against your skin, fortunately at those

wavelengths the sun is a relatively steady star. But as soon as you start looking at other wavelengths -- X-ray, gamma-ray -- or the charged particles in the hot the gas that comes off the sun at times it can be extremely violent," said Slavin.

"**ST5** is going to measure the intensity, stability and motion of electric currents that flow in and out of certain regions of Earth's ionosphere that power the Northern and Southern Lights."

The **micro-sats** will explore Earth's magnetic field using highly sensitive magnetometers. But officials stress that **ST5** is just testing whether the technologies will work, while serving as the catalyst to spur later missions that would perform the scientific research.

"As part of the demonstration, I believe **ST5** will produce some unique scientific measurements, and depending on what those measurements show

it is possible there could be a discovery made. But the primary purpose is the technology validation. If we do make a scientific discovery or see something that is very surprising, which is possible, it will just be a serendipitous event and certainly it'd be a very nice bonus," Slavin said.

Each **micro-sat** has a deployable boom with a magnetometer, which Slavin called a "proxy" for a more complete suite of particles and fields

instruments that would be needed on operational space weather probes.

The **ST5** **micro-sats** are "full-service" spacecraft with propulsion, communication and control systems. They were constructed to be "magnetically clean" to prevent interfering with the science measurement tests. And each have built-in intelligence to fly for a week in "lights out" mode while operating autonomously without human interaction.

"The focus is on reducing the risk -- the cost risk, the schedule risk, as well as understanding the performance risk for these advance technologies," Stevens said.

"The first one is always harder to build because you are learning all of these new things. But from now on all of the smaller satellites of this size will be much, much easier to build because of the lessons learned from **ST5**," added Art Azarbarzin, the **ST5** spacecraft project manager.

Slavin anticipates the advances made by **ST5** and later steps to understand space weather will pave the way for a solar storm alert network.

"I expect there will be some **constellations** deployed that are basically warning systems. You can think of them almost as the
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Mar 22, 2006 by Staff Writers

NASA は ST5 打上げで3機全て成功

NASA Is Three For Three In Successful ST5 Launch

Vandenberg AFB CA (SPX) Mar 22, 2006 -- NASA's Space Technology 5 mission got underway without a hitch Wednesday when an L-1011 aircraft dropped a compact Pegasus rocket from its payload bay and Pegasus lifted three micro-satellites into polar orbit.

The drop went off on schedule at 6:04 a.m. Pacific Time from the mission's Orbital Sciences L-1011 jetliner, flying south-southwest over the Pacific Ocean off the California coast. At the moment the Pegasus first-stage engine ignited, the announcer at Vandenberg said the mission was away "to demonstrate that good science can come in small packages."

Pegasus performed as designed, with its second stage igniting about two minutes into the mission, after the rocket reached an altitude of 120 miles at a speed of about 12,000 miles (19,000 kilometers) per hour. After five minutes, the third stage motor kicked in and at seven minutes the spacecraft achieved orbital speed of 18,000 miles (28,000 kilometers) per hour and reached 200 miles in altitude, and one-by-one released its triple micro-sat payload.

The ST5 mission is part of NASA's New Millennium project, which was established to test the concept of using low-cost micro-sats, and to validate new technologies for future low-cost science missions. The three ST5 spacecraft are designed to collect data on Earth's magnetic field for at least 90 days and study the relationship between the magnetic field and the formation of auroras.

One test device included in the mission is a tiny heat radiator with components so small they are visible only under a microscope. The radiator employs shutters so small that several abreast are narrower than the width of a single human hair.

Scientists at Johns Hopkins University's Applied Physics Laboratory in Laurel, Md., attached the device to the skin of one of the ST5 satellites, to demonstrate how the technology can be used to regulate the temperature of a satellite or one of its instruments.

"This is the first time a fully space-qualified device of this type has ever been flown, and the first to be flown on the outside of a

tsunami buoys they are putting out in the Indian Ocean right now."

satellite," said APL team member Ann Darrin. "It's also the first demonstration of MEMS technology used to actively control temperature."

In a 4-inch-square section atop one of the micro-satellites, tiny comb-shaped motors powered by electrostatic charges open and close microscopic shutters to regulate the temperature of that area of the satellite. "When a satellite's in space, you need to keep its temperature constant," Darrin explained. "As we shrink the size of satellites and their onboard systems, it becomes harder to regulate and maintain a constant temperature. By putting these devices on the outside or skin of a satellite you can change its emissivity.

She said when the satellite is facing the Sun the device can cool the satellite by closing the shutter doors and reflecting the heat. Or, to warm the spacecraft, the shutters can be opened.

The 4-inch square radiator contains 36 chips, each about the size of a single key on a computer keyboard. Under a microscope, there are 72 shutter segments, each driven back and forth by six tiny motors controlled from an electrostatic charge-based power source located inside the satellite.

To protect the tiny devices from dust and condensation, which could hinder their operation, the team encased the devices in a window using a clear material known as CP-1, a polymer rugged enough to sit on the outside of a satellite during space-based operations, and more cost-effective than materials like single-crystal sapphire.

"Often people associate small with being frail," Darrin said, "but our tiny shutters, which don't touch when they close, are exceptionally strong, particularly when operating in space without gravity, weight or resistance forces to wear or degrade moving parts."

She said the small lightweight devices could shave off numerous pounds from a micro-sat, resulting in smaller radiators, for example, and making the overall micro-sat more efficient and cost-effective.

On March 15, controllers aborted an attempt to launch the ST5

mission after a locking pin failed to retract aboard the Pegasus just

prior to the rocket's release from the L-1011 lifting aircraft.

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03/23/2006, page 06 Aerospace Daily & Defense Report

NASA が ST5 を打上げ、衛星は動作中

Satellites working as NASA launches ST5

An air-launched Pegasus winged rocket spun three small NASA testbed satellites out like Frisbees over the Pacific yesterday in a picture-perfect launch of the ST5 mission.

Adding icing to the cake, the McMurdo Ground Station in Antarctic picked up the satellites as they passed overhead on their first orbit. McMurdo used an untried X-band uplink and downlink capability that was installed to provide for extended operations of the ST5 **constellation** after its three-month nominal mission using NASA's Deep Space Network (DSN).

The Pegasus XL launch vehicle was dropped from its L-1011 carrier plane at 9:04 Eastern time, and ignited as planned five seconds later for a flawless three-stage burn to orbit. A special deployment device built, like the satellites, at NASA's Goddard Space Flight Center, ejected the three 55-pound spacecraft front to back at three-minute intervals. "We were able to drop right on the mark, and it looks like a very successful mission so far," said NASA Launch Manager Chuck Dovale after the final deployment.

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March 22 (UPI)

NASA は ST5 衛星を打上げ

NASA launches ST5 Satellites

VANDENBERG AIR FORCE BASE, Calif., March 22 (UPI) -- NASA launched a Pegasus XL rocket Wednesday carrying **Space Technology 5** satellites from Vandenberg Air Force Base in California.

The three so-called micro-spacecraft will be evaluated as they measure the Earth's magnetic field using small boom-mounted magnetometers on each satellite.

Miniaturized components and technologies are integrated into the **ST5 micro-satellites**, each of which weighs approximately 55 pounds when fully fueled and is about the size of a 13-inch

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Spacecraft checkout using the DSN was scheduled to continue throughout the day, but early indications were that the satellites were functioning as planned. Although they were designed to demonstrate technologies that may one day go into building and operating large

constellations of small, low-cost scientific spacecraft, the three **ST5** satellites will conduct simultaneous measurements of the Earth's auroras as they pass through them (DAILY, Feb. 10).

A March 15 launch attempt was scrubbed at the last minute when the pilots on board the Orbital Sciences Corp. L-1011 were unable to retract pins locking the Pegasus control fins in place during the captive carry portion of the mission. The plane returned to its staging point at Vandenberg Air Force Base, Calif., where the pin mechanism was replaced. Engineers were unable to discover the exact cause of the mechanical anomaly, although icing was suspected (DAILY, March 16). The pins withdrew as planned yesterday.

television screen.

NASA says development of **micro-spacecraft** may lead to the use of constellations, or swarms, of small spacecraft to accomplish science that cannot be done with a single spacecraft.

Each **micro-spacecraft** contains all of the power, propulsion, communications, navigation and control functions found in larger spacecraft, NASA said.

The spacecrafts' orbit will be a so-called string of pearls in a near-Earth polar elliptical path that will take them from approximately 190 miles to 2,800 miles from the planet.

Wed Mar 22, 1:15 PM ET

NASA は複数のマイクロサテライトを宇宙に打上げ

NASA Launches Microsatellites Into Space

NASA fired three **microsatellites** into space Wednesday to study the Earth's magnetic fields, a week after an earlier launch was scrubbed.

The 55-pound ST5 satellites, which will test new technologies for future science missions, were carried aloft from Vandenberg Air Force Base aboard a Lockheed L-1011 jet.

Shortly after 6 a.m., when the plane reached 39,000 feet, a compact Pegasus rocket dropped from the aircraft's belly fired its engine and ferried the satellites on a 10-minute climb into space. The launch was broadcast live on NASA's TV station.

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The mission's goal is to demonstrate the benefits of a group of small, low-cost satellites simultaneously measuring the magnetic fields from different locations.

The **ST5** project is part of NASA's New Millennium Program, which was created to identify, build and test innovative technologies.

The agency never determined the exact nature of the problem that delayed last week's launch but surmised it was caused by a locking pin in the rocket's flight control, which failed to retract before launch because ice had formed on it.