



Loran Lines

August 2002

Newsletter of the International Loran Association

Volume 2002-2

Highlights:

ILA Annual Convention

– page 1

Galileo update

– page 1

ILA Election results

– page 2

R.I.N. NAV 02 meeting

– page 3

Vernon Johnson

– page 3

ILA Convention details

– pages 4 – 6

ILA to meet in Washington DC October 27–30, 2002

LORAN'S ROLE in mitigating vulnerabilities in a post 9/11 World is the organizing theme of the 31st Annual Convention and Technical Symposium of the International Loran Association (ILA). Central to the program will be an exploration of the future role of Loran and the actions that must be taken to enable it to best fulfill that role. From the U.S. Department of Transportation report "Vulnerability Assessment of the Transportation Infrastructure Relying on the Global Positioning System," it is clear that Loran can mitigate vulnerabilities impacting transportation, communication and timing. Loran has proven to be a robust, economical, complementary, seamless regional backup to GPS and its augmentations.

While the North American Loran system is being modernized with solid state transmitters, an improved time and frequency system and a high capacity data link, present U.S. government policy to coordinate Loran as a backup to critical applications remains unclear. U.S. Secretary of Transportation Norman Minetta has appointed Deputy Secretary Michael Jackson to lead a DOT team addressing the issues of vulnerability – a process which may well be a major factor in determining the future role of Loran.

ILA 31 is planned to provide a timely opportunity to debate updated operation concepts for Loran and its data link, the integration of Loran into critical backup plans, and the development of low-cost multi-use receivers to facilitate the use of Loran.

Co-Chairmen Jim Doherty and Chuck Schue are planning an informative and challenging program of speakers and papers. This is an important meeting and it is essential that ILA members and Loran advocates in the user community contribute to the presentations and to the discussion that will take place.

Full details on the program, registrations and accommodations begin on page 6, and can be obtained on the ILA website: www.loran.org ■

European Union moves ahead on Galileo project

AFTER MONTHS OF wrangling and indecision, the European Union transport ministers have approved funding to match that of the European Space Agency, giving a green light to the Galileo project, the European equivalent of the United States Global Positioning System (GPS).

The project's justification is founded on economic grounds, but not to be discounted is Europe's desire to become independent of the United States for satellite positioning and timing services. Further, European ministers look at Galileo in much the same light as the Ariane launcher and Airbus industry, projects that have provided a technological base for economic growth.

But the technological and implementation aspects are confused and not without question. The claim that Galileo will be more accurate than the free GPS service and that there will be added Galileo user benefits is a thin veil to justify user fees. The pronounced fear that the United States will suddenly apply user fees is without foundation and is, in any case, logistically unworkable.

The rhetoric on the U.S. side is equally voracious. That we don't need Galileo is false; there are insufficient satellites in the GPS constellation to provide the required availability, especially at high latitudes. That Galileo will interfere with GPS has yet to be ascertained and demonstrated.

Missing in the European dialogue is any reference to Galileo vulnerability and the need for complementary terrestrial systems. In fact, Galileo is cited as being a backup to GPS, an argument that seems to contradict Galileo's place as the primary positioning and timing system for Europe. Is GPS to be Galileo's backup?

The good news is that Europe is going ahead with a much-needed second constellation to provide the future GNSS (GLONASS appears to have died, at least temporarily). We should all benefit from Galileo and the United States must learn to build on this new utility even if it means developing a jamming capability for selective denial to our enemies.

The major challenge for the European consortium building and launching Galileo is the ambitious schedule. As PriceWaterhouseCoopers has stated, missing the 2008 window for operation will have a significant impact on potential revenue with the modernized GPS system providing the planned Galileo enhancements.

John Beukers March 27, 2002 ■

International Loran Association

Election results

The results of the July ILA elections are in! Elected officers and directors are listed below. Board member terms end at the close of the ILA Convention in the year shown

President:	G. Linn Roth	roth@locusinc.com
Past President	John M. Beukers	jb@iu.net

Langhorne Bond (2004)	phone/FAX 919-542-6614
James Doherty Jr. (2004)	Jim Doherty@erols.com
Erik Johannessen (2005)	ejohannessen@megapulse.com
Terje Jørgensen (2003)	thj@ftd.mil.no
David Last (2005)	jdl@navaid.demon.co.uk
Bob Lilley (2005)	rlilley@illgen.com
Ben Peterson (2005)	BenPetero@aol.com
Marty Poppe (2005)	mcp@cameng.com
Thomas Rice (2004)	trice@navcen.uscg.mil
William Roland (2003)	w.f.roland@worldnet.att.net
Charles Schue (2004)	cschue@wrsystems.com
Durk Van Willigen (2003)	D.vanWilligen@Reelektronika.nl

A complete listing of the Board membership, addresses and phone numbers can be found on the ILA website: www.loran.org ■

ARE YOU HERE ?

ILA Operations Center reports that the following e-mail addresses have "bounced." Check the list, and if you are there please advise Ellen at ila@loran.org so the Association data file can be corrected.

ronald.kjaersund@ftd.mil
whamito@wrsystems.com
arsenault@lsu.uscg.mil
kbarcus@lorstagrangeville.uscg.mil
sdyer@lsu.uscg.mil
jkoermer@lsu.uscg.mil
MMMIM@home.com
mwshuey@earthlink.net

fkemp@home.com
beingeng@earthlink
rdll@interlog.com
doug-gibbs@avionics.bfg.com
whilljr@mindspring.com
cpmgps@interramp.com
kdmgps@interramp.com
whilljr@mindspring.com
cpmgps@interramp.com
kdmgps@interramp.com
mondocj@midcoast.com
w.y.pelgrum@ITS.TUdelft.nl
vadmsarg@simplyweb.net
bpbogert@shore.net
larryc@ashtech.com
thomas@mail.state.wi.us
jbooth1930@aol.com

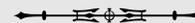
Wire transfers received by the ILA Operations Office do not contain information about the sending party. As a consequence, the Center does not know whom to credit with the payment.

When paying by wire transfer, please notify the Operations Center by e-mail or by FAX that a transfer is on the way, along with the amount and what it is for.

If you have multiple addresses or are making a move, please notify the Ops center by e-mail, fax, or phone when the address change is effective.

Loran Lines is an official publication of the International Loran Association (ILA).

ILA Operations Center
741 Cathedral Pointe Lane
Santa Barbara CA 93111
Phone: +1 805-967-8649
Fax: +1 805-967-8471
e-mail: ila@loran.org
<http://www.loran.org>



The ILA encourages readers to submit material for publication. Any and all news related to Loran and ILA members is welcome. Send information (with pictures, if possible) to either of the co-editors:

Albert Frost
Kingsbury Hall
University of New Hampshire
Durham NH 03842
tel: 603-862-1306
fax: 603-862-1832
albert.frost@unh.edu

Otis Philbrick
Technical Artistry
323 Dover Road
Westwood MA 02090
tel: 781-326-0851
fax: 781-326-6974
ophilbrick@aol.com



Current advertising rates per insertion:

1/2 page: \$100 (4 for \$300)
Business cards \$15 (4 for \$50)
Classified: \$5 for each 50 words or part thereof

ILA members who have not yet paid this year's dues are asked to do so now. Membership forms can be downloaded from ILA's website:

<http://www.loran.org/Membership/Formindividual.htm>

Please note ILA's web site address: <http://www.loran.org>
and e-mail address: ila@loran.org

R.I.N. NAV 02 to consider all aspects of GNSS Vulnerability

MEETING in London on 5-7 November 2002, the Royal Institute of Navigation (RIN) conference will focus on the vulnerability of Global Navigation Satellite Systems (GNSS) to interference both accidental and deliberate, and to misinterpretation and misoperation. The Conference will discuss how to address these issues and ameliorate vulnerabilities. Events that have taken place over the last year have served to concentrate minds on the risk assessment, both technically and from the human health and safety viewpoint.

As industry seeks to counter the identified threats, backup systems have assumed a higher profile. Users should be aware of the advantages and vulnerabilities of using GNSS in their products. NAV 02 aims to give attendees a better understanding of the present situation and what can be done about it. Topics for consideration include Risk Assessment Methods, Existing Institutional Assessments, Effect and Solution: Case Studies, Solutions and Strategies.

The conference will be held at Church House, Westminster, London. Further information can be obtained from the Royal Institute of Navigation, 1 Kensington Gore, London SW7 2AT or from their web site www.rin.org.uk ■

Marine users reminded of the potential dangers of GPS as a sole source

IN AN ARTICLE entitled *The Dark Side of GPS*, Ben Ellison of Power and Motor Yacht magazine outlined in the April 2002 issue his concerns regarding the vulnerability of GPS and reasons against depending solely on satellites for navigation. The report combines his personal evaluation of Jim Carroll's vulnerability report prepared for the DOT Volpe Center and discussions with ILA Board Member Langhorne Bond.

GPS can fail; it is now well known that it can be interfered with accidentally or deliberately. Such interference can cause hazardously misleading information, which can have more serious consequences than no information for both the aircraft and marine user. Beyond the implications of GPS malfunction or failure to navigation and position finding is the impact on essential timing services provided for data communication networks.

It is an oft-repeated observation that the prudent navigator does not depend on a sole source of information for position measurement but at all times insists that some form of secondary backup capability be available. The existing

Loran system, with its proven stability and nation-wide coverage, makes it the optimum choice in the U.S. for such a backup role. However, the strident advocacy of GPS by some Federal agencies as a sole-source for navigation has had the serious effect of depressing the development and production of new state-of-the-art Loran receivers.

The user community should be made aware that Loran technology is fundamentally different and more

Ellison: "The ultimate beauty of Loran is how different it is from GPS."

robust than GPS and thereby far less vulnerable to deliberate actions that can easily overpower the incredibly low energy satellite signals on which we

are being persuaded to depend on for all applications. With high-power, low-frequency, land-based transmitters, Loran is much harder to jam or spoof.

Loran should be supported as part of an overall integrated navigation system working in combination with satellite navigation systems such as GPS and Galileo. We look forward to the development of a new generation of integrated GPS/Loran receivers that create a fusion of both position data streams to drive piloting systems and provide input to digital charts. ■

Vernon Lee Johnson 1921 - 2001

Verne Johnson was born on October 4, 1921 in Mount Gilead, North Carolina, son of Charles and Rebecca Johnson. He joined the US Navy in October, 1942. Trained as a radio technician, he served in the Pacific Theater as Chief Petty Office aboard two destroyers, USS Uhlmann and USS Downes. After his military service he attended North Carolina State College, receiving his BS in Electrical Engineering in 1949. Shortly after graduation he joined ITT Federal Laboratories, Nutley New Jersey, as a junior engineer. He continued his studies and earned an MS in Electrical Engineering at Newark College of Engineering in 1954. Verne and family moved to North Caldwell New Jersey in 1964 and he continued with ITT Avionics as a program manager until his retirement in 1987. Since 1991 the entire family has enjoyed an annual two week vacation at Rehoboth beach where he enjoyed long walks on the boardwalk with the family. Verne passed away at Mountainside Hospital, Glen Ridge, on October 3. He is survived by his wife Dorothy, sons Vernon, Kenneth and Roger, daughter Ann Dumais, brothers Carl, Bobby and Howard, and sister Margaret Marciante. ■



Verne Johnson

A Charter Member Remembered

Verne Johnson, who passed away October 2, 2001, was a charter member of the Wild Goose Association (WGA) which became the International Loran Association (ILA). He was responsible for suggesting that the original Association be named after one of the world's greatest natural navigators: the Canada Goose. He was Chairman of the Constitution Committee during the formation

of the Association and a member of the original Board of Directors. Verne was awarded the Association's Medal of Merit in 1978.

In the business world, Verne Johnson was an Engineering and Project Manager at IT&T Avionics from 1949 until his retirement in 1987. Amongst his projects was the development and production of the AN/ARN92 Loran receiver installed in tactical aircraft for deployment in Vietnam. He was

program manager for the AN/FPN-44 and AN/FPN-45 Loran transmitter production for the US Coast Guard Loran expansion program covering the Coast Convergence Zone and later the FAA initial mid-continent Loran expansion.

Verne was a regular participant in Association Conventions. We will miss him and send our condolences to his wife Dorothy who always added life and humor to the party.

John Beukers ■

ILA-31 Annual Convention

Venue: The Convention will be held in the Crowne Plaza Washington National Airport in Arlington, Virginia, a suburb of Washington, DC, just minutes from the Ronald Reagan Washington National Airport.

Accommodation: Blocks of rooms at discounted rates have been reserved for Convention participants and their partners at the Crowne Plaza. When making reservations, state that you are registering for the ILA Convention. Fifty rooms have been reserved for the ILA. Once the block rooms are filled, the normal rates will apply. Location and directions to the hotels can be retrieved from their web sites.

Convention Hotel
Crowne Plaza Washington National:
1489 Jefferson Davis Highway
Arlington, VA 22202
Phone: 703.416.1600
Fax: 703.416.1651
www.crowneplaza.com

Government Rate	\$150
Single Rate	\$150
Double Room Rate	\$169
VIP Suite	\$189
Normal Single Rate	\$209
Normal Double Rate	\$229

(9.75% tax is added to the above)

Alternate Hotel:
Crystal City Marriott
1999 Jefferson Davis Highway
Arlington, VA 22202
Phone: 703.413.5500
www.marriott.com

Alternate Hotel:
Crystal Gateway Marriott
1700 Jefferson Davis Highway
Arlington, VA 22202
Phone: 703.920.3230
www.marriott.com

Join us at ILA-31; submit an abstract or paper, and mark your calendars!

This year marks an important decision period in the U.S. as Loran-C is evaluated as a backup/alternative to GPS for the various transportation modes, and for precise timing applications. Similarly in Europe, decisions on backup are needed as Galileo moves ahead.

We look forward to seeing you in Washington, DC, October 27-30, 2002.

Organization and Contacts

Convention Chairman: Jim Doherty
4850 Mark Center Drive
Alexandria, VA 22311 USA
Phone: 703.578.2710
Fax: 703.931.7792
E-mail: jdoherty@ida.org

Co-Chairman: Chuck Schue
10680 Main Street, Suite 300
Fairfax, VA 22030 USA
Phone: 703.934.0200
Fax: 703.934.0202
E-mail: cschue@wrsystems.com

Technical Chairman: Bill Roland
P.O. Box 9539
Panama City Beach, FL 32408 USA
Phone: 850.233.9228
E-mail: broland@knology.net

GAUSS Chmn: Gerard Offermans
Oude Baan 23 Reelektronika B.V.
3060 BERTEM Nieuwenbroeksedijk 6
Belgium 2811 NJ Reeuwijk
The Netherlands
Phone: +32 16 482 707
Fax: +32 16 482 741
Mobile: +32 486 24 00 97
E-mail: G.Offermans@Reelektronika.nl

Tourism: No formal social program is planned as arrangements can be made at the hotel, depending upon the wishes of those participating. Please see the hotel concierge for additional tourism information.

Municipal Tourist Office
Washington, DC Convention and
Tourism Corporation
1212 New York Avenue, NW, Suite 600
Washington DC 20005 USA
Telephone: 202.789.7000
www.washington.org

Fees and Registration: Registration for the Convention can be made by direct contact with the ILA Operations Center, by e-mail attachment to the Operations Center, at the ILA web site, or via mail/fax. MasterCard/Visa, checks in US dollars drawn on a US bank, and wire

transfer accepted. If wire transfer is used, please contact the Operations Center for the correct bank routing and for identifying the sender. The wire transfer fee is \$45.

The ILA Convention registration fees are:

\$475 for ILA members (by September 27th),

\$530 for non-members, or after September 27th, or at the door.

The fee includes a CD of the Proceedings, two lunches, the banquet, and participation in the ILA hospitality suite for the duration of the Convention. Additional fees are:

GAUSS Registration: \$25

Booth and/or Display Space: \$50

Additional banquet tickets for guests: \$60.

Single Day Attendance: \$250.

Partner/Spouse attendance: \$110.

International Loran Association 31st Annual Convention and Technical Symposium

October 27-30, 2002
Washington, DC
United States

About the Symposium: The Key Question: Is this the beginning of the beginning for 21st Century Loran, or the beginning of the end?

This is in reality two questions—what is the role for Loran, and what actions are needed to enable Loran to fulfill its role—in the Post-9/11 World? From the U.S. Department of Transportation's report, "Vulnerability Assessment of the Transporta-

tion Infrastructure Relying on the Global Positioning System," it is clear that Loran can mitigate vulnerabilities in transportation, communications, timing, and other infrastructures.

As we prepare for the International Loran Association's 31st Annual Convention and Technical Symposium, let us, however, be mindful that Loran is not the only solution. We in ILA know that Loran is a robust, economical, complementary, and seamless regional backup to GPS and its augmentations. However, there are other ways to mitigate vulnerabilities; though ILA members feel none comes close in benefits of Loran and many are more costly, these alternatives have powerful and effective advocates.

Though modernization is underway, U.S. Loran continues to struggle in the budget process—it competes with GPS Modernization and GPS III, and more directly with WAAS, LAAS, NDGPS, VOR/DME, ILS, and other new or legacy "focused-use" systems. Specialized legacy systems have the advantage that users are already equipped and trained to use them, and these users would incur costs and inconvenience to change. Most user groups support use of GPS and augmentations for improved primary service but see no benefit (and only costs) in changing from existing legacy systems for backup.

In addition, Loran is often not well understood and is frequently criticized—perceived as outdated technology, with severe propagation limitations, legacy operating concepts, and lack of modern user equipment. Although the European and most Far East Loran systems have been modernized and North American Loran systems are being modernized—all with solid-state transmitters, improved time and frequency systems, and most with high capacity data links, U.S. and European government plans to coordinate and update operating concepts and to foster continued use of Loran as a backup for critical applications are unclear. Though under study, industry has not yet produced low-cost, capable user equipment to facilitate seamless integration of Loran as a backup system of choice for critical needs. We all know this as a classic Government-industry chicken-egg dilemma.

U.S. Secretary of Transportation Norman Mineta appointed a DOT task force to address the Vulnerability Assessment. That process will likely determine the future of U.S. Loran. We understand similar European considerations of Loran's future are now also under review. This year's ILA convention provides a timely opportunity to debate updated operations concepts for Loran and its data link, integration of Loran into critical applications' backup plans, and development of low-cost multi-use receivers to facilitate such use of Loran. These areas must be improved if this is to be the beginning of the beginning for Loran. Now is the time for all ILA Members to review references, consult with col-

leagues, and put pen to paper to support this important ILA meeting.

For further information, contact the ILA Operations Center (see page 2).

GAUSS Meeting

There will be a GAUSS standardization group meeting at the Convention hotel on Sunday, 27th, and Thursday, 31st.

CONVENTION PROGRAM

Day 0, October 27

GAUSS Group Meeting
Board of Directors Meeting
Evening: Icebreaker

Day 1, October 28

Welcome and Key Note Address
Session 1: Plenary Session: Policy Updates
Session 2: Status and Plans of Loran-C Services
Providers: NELS, FERNS, North America, etc.

Lunch

Session 3: Multimodal Loran-C Use
Session 4: Loran-C Data Communications: U.S. & European activities highlighted

Evening: Reception

Day 2, October 29

Session 5: New Developments and User Requirements

Session 6: Tests and Trials

Free Afternoon

Evening: Banquet and Awards

Day 3, October 30

ILA Convention Members Meeting

Session 7: Reports and Studies

Session 8: Propagation and Calibration

Lunch

Session 9: Panel Discussion: The Future Role of Worldwide Loran-C

Resolution and Closing Summary

Board of Directors Meeting

Day 4, October 31

GAUSS Group Meeting ■

ILA 31 Call for Papers

Abstracts of papers to be considered for presentation at the Convention should be submitted to:

ILA Operations Center
741 Cathedral Pointe Lane
Santa Barbara CA 93111 USA

Registration Form
International Loran Association
31st Annual Convention and Technical Symposium
Determining Loran's Role in Mitigating Vulnerabilities in a Post-9/11 World
October 27-30, 2002 / Washington, DC / United States

To register, mail this form to:

International Loran Association, Operations Center, 741 Cathedral Pointe Lane, Santa Barbara, CA 93111 USA.

Or, FAX this form to 805.967.8471.

Or, fill in this form at our web site at www.loran.org.

Hotel: Crowne Plaza Washington National, 1489 Jefferson Davis Highway, Arlington, VA 22202 USA

Phone: 703.416.1600 Web: www.crowneplaza.com (Ask for ILA 31 Room Rates)

For more information, please point your web browser at www.loran.org.

Last Name _____ First Name _____

ILA Member? No ___ Yes ___ Member Number _____ E-mail _____

Title & Organization (for name badge) _____

Address(1) _____

Address(2) _____

City _____ State/Province/County _____

Postal Code / ZIP _____ Country _____

Telephone (work) _____ (home) _____ (fax) _____

Spouse, Partner, or Guest Name(s) _____

Registration and Fees: Credit card payment is preferred. Wire transfer services are available. However, you must contact the ILA Operations Center prior to each funds transfer to insure that account information is transferred. The wire transfer fee is \$45. If paying by check, the check must be in U. S. funds, drawn on a U. S. bank, to avoid high bank fees.

Registration Fee Refund Policy: 50% refund if cancellation is received before September 27, 2002.

Registration fee: US \$475 for ILA members. US \$530 for non-members. Registration after September 27th, or at the desk: US \$530. Fee includes all sessions; exhibit attendance, reception, convention luncheons, banquet and hospitality suite, and CD copy of the Proceedings. Working breakfasts are provided for speakers and session chairs.

One-day fee: US \$250 – Includes one daily session, Proceedings, exhibit, and lunch. _____

Banquet fee: US \$60 – Includes Tuesday Formal Banquet and Awards Presentation. _____

Guest fee: US \$110 – Includes Sunday Icebreaker, Monday Reception, Hospitality Suite, Tuesday Formal Banquet, and Awards. Does not include technical sessions. _____

GAUSS Group Meeting fee: US \$25 – Includes two half-day sessions. _____

Booth and/or Display fee: US \$50 – Includes space for the duration of the Convention. _____

TOTAL (U.S. Dollars) _____

Payment: Visa _____ MasterCard _____ Check _____ (U. S. dollars, drawn on a US bank)

Card or Account # _____ - _____ - _____ - _____ Expiration ____/____

Signature (required for credit card registrants) _____



LORAN Technology for the 21st Century

New Linear Averaging Digital (LAD) – Loran-C Timing and Navigation Receivers

Linear Averaging Digital (LAD) LORAN LRS IIID

- Incorporates digital signaling processing (DSP) technology in a monitoring/control receiver.
- Provides complete PC interface/control to support remote operations and diagnostics.
- Accepts Cs clock input.
- Provides Time of Arrival and Time Difference data.
- Includes local phase code interval (LPCI) resolution.
- Used by USCG to monitor/control US Loran-C systems.



Cs Sync Timing Applications



- Offers true Stratum 1 timing performance indefinitely, including UTC generation, and operates in deep urban canyons or areas where line of sight blockage prevents GPS penetration.
- Requires minimum installation, so cellular base stations can be located where they are needed.
- Offers indefinite system redundancy and reliability wherever GPS blockage, interference or jamming might occur.
- Minimizes installation profile with short E-field and small H-field antenna options.

SatMate Navigation Applications



- An ideal complement to GPS in all marine, aviation and terrestrial applications eliminating the vulnerabilities of a sole-means system.
- Can be integrated with a GPS receiver and controlled by a single user interface, making operation cost effective and transparent to the user.
- Built-in Eurofix capability means DGPS corrections can be continuously supplied, wherever and wherever the need.

Locus, Inc.

5540 Research Park Drive
Fitchburg Center
Madison, WI 53711

Phone: 608/270-0500

Fax: 608/270-5257

Website: www.locusinc.com

Affinity City

What is Affinity City?

A web-based collaboration space allowing groups of individuals to share data, products, processes, services, and other resources in a controlled and secure way.

Who uses Affinity City?

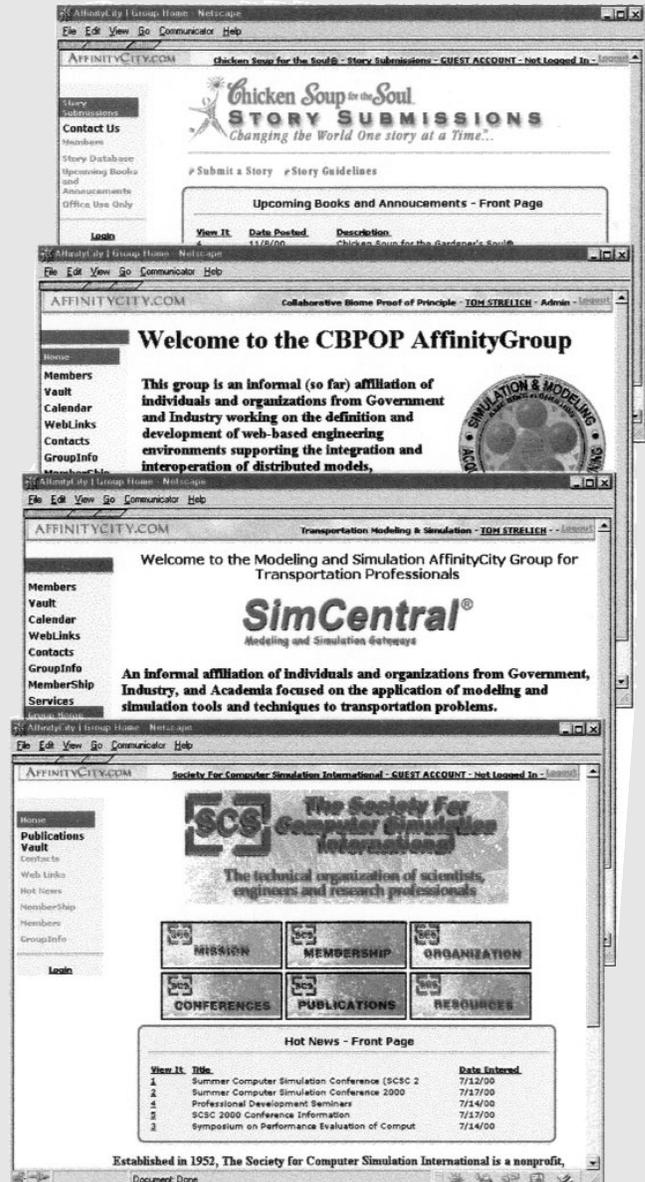
Teams, groups, organizations, institutions, enterprises — any formal or informal affiliation of individuals working toward a common goal.

How is it used?

An unlimited set of customizable functions to create an open-ended variety of web-accessible collaboration capabilities.

What's Unique about Affinity City?

Not just file sharing, but a web-database supporting three enterprise collaboration levels: User-User, User-Tool, and Tool-Tool via Si3.



For Additional Information contact:

www.affinitycity.com

130 Robin Hill Road, Suite 200

Goleta CA 93117

(877) 692-8449 (Voice)

(877) 692-2334 (Fax)