



# **The SETI League, Inc.**

## **2008 Annual Report**

### **Issued 1 February 2009**

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## **Contents:**

Vision and Mission Statements	2
A Message from our Founder and President	3
Case for Support	4
Program Service Accomplishments – Science	5
Program Service Accomplishments – Technology	6
Program Service Accomplishments – Public Education	7
Program Service Accomplishments – Media and Outreach	8
Trustees and Officers	9
Financial Highlights	10
Annual Budget – 2009	11
2008 Donors	12
Major Donations, Since Inception	13
Additional Information	14

SETI scientists seek to determine, primarily through microwave and optical measurements, whether humankind is alone in the universe. Since Congress terminated NASA's SETI funding in 1993, The SETI League and other scientific groups have been attempting to privatize the research. Experimenters interested in participating in the search for intelligent alien life, or citizens wishing to help support it, should visit us on the Web at <<http://www.setileague.org/>>, email to [join@setileague.org](mailto:join@setileague.org), send a fax to +1 (201) 641-1771, or contact The SETI League, Inc. membership hotline at +1 (800) TAU-SETI. Be sure to provide us with a postal address, to which we will mail further information. The SETI League, Inc. is a membership-supported, non-profit [501(c)(3)], educational and scientific corporation dedicated to the electromagnetic Search for Extra-Terrestrial Intelligence.



## **SETI League Vision**

**Recognizing that confirmed evidence of extraterrestrial intelligence will change forever our view of humanity's place in the cosmos, The SETI League, Inc. envisions a worldwide network of amateur and professional scientists working together to hasten our entry into the galactic community.**

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## **SETI League Mission**

**To encourage and support the Search for Extra-Terrestrial Intelligence by:**

1. attracting a wide range of amateur and professional scientists into the SETI community;
2. developing technologies to assist the SETI experimenter in assembling a workable radio or optical SETI observatory;
3. disseminating hardware and software designs in support of SETI;
4. coordinating SETI experimenters worldwide in conducting a thorough sky survey;
5. providing a variety of forums and media for wide-ranging communication among SETI experimenters, enthusiasts, and organizations;
6. designing, assembling, and operating advanced optical and radio telescopes;
7. identifying and publicizing potential spin-off applications of SETI technologies; and
8. raising public consciousness as to the importance and significance of a broad-based Search for Extra-Terrestrial Intelligence that encompasses a variety of strategies.



## A Message from our Founder and President

by Richard Factor

Am I an idiot, having spent 15 years and many dollars involved with the SETI League, one of the few organizations whose mission it is to discover extraterrestrial intelligence? No! At least, not for that reason. When NASA dropped SETI by Congressional fiat, a number of groups leapt into the breach. The SETI League, of which I have the pleasure of being the founder, was one of them.

Our existence began in 1994. Looking back over those fifteen years, I have a number of memories. Included in the memories is a dinner at an AAAS convention where all the SETI scientists were present. Frank Drake was there, the originator of the famous Drake equation and the first person to actually look for an ET message. So were Jill Tarter and Kent Cullers and the usual host of others. Of course that's not *all*, but it sure seemed that way to this neophyte. I had the opportunity to visit the Arecibo observatory while the SETI Institute's Project Phoenix was under way. The observation was scheduled for late at night, and I stayed up long enough to watch the computer programs parse some random noise. It would certainly have been a stunning coincidence to just happen to receive a message that night. No such luck; I repaired to my "visiting scientist" cabin after a couple of hours.

I remember attending several of the SETI League's *SETICon* meetings, organized by our now-volunteer executive director, Paul Shuch. I even delivered a paper about gravitational lensing, a subject which I believe I can at least pronounce correctly, and finding that scientist and mathematician Claudio Maccone thought enough of it to incorporate it in one of his books. And, I remember those heady days of the late '90s and early oh-ohs during which the SETI League was well funded, with contributions both from flush foundations and generous individuals, and by the overnight doubling of our ranks as new members were inspired after seeing the movie *Contact*. But most importantly, I remember a number of earnest SETI League members doing what I had hoped all along would be accomplished when I envisioned the organization: setting up their own observing station and searching for that elusive signal.

They haven't found it. Despite a massive search by other SETI groups as well, *nobody* has found it. Why, then, am I not discouraged? 15 years is a pretty substantial life fraction, and I'd be lying if I said that I wasn't at least disappointed. But despite the Fermi Paradox, despite the Unique Earth naysayers, I am *encouraged* that success is around the corner. Every year our search capability increases. Every year we learn more about the universe and cosmology. And, I hope, that SETI League members are even now, with or without their small dishes and inexpensive hardware, thinking about the problem as innovative amateurs usually do. Will the big guys make the Discovery? Will we, the little guys? And how soon? I have no prediction - "the corner" could be anywhen.





## Case for Support

Ever since mankind first used intellect to distinguish itself from the rest of the animal world, a fundamental and profound distinction became evident --- we do not seek simply to survive, we seek to understand.

Intellectual curiosity is part of what separates man from beast. And scientific endeavor has always been driven less by need than by desire. We desire knowledge not for what we can do with that knowledge, but for the sake of the knowledge itself.

Modern scientific research has until recently followed the same principle: ask the questions, find the answers, then figure out how to apply that knowledge. But today, more and more scientific research is being dictated by a pre-determined end, an application in search of a question.

Scientific research isn't about application, but discovery. The Search for ExtraTerrestrial Intelligence (SETI) is mankind's search to know what, or who, is out there. Because it is contrary to our nature to not try and discover if there is intelligent life beyond our own world.

**The SETI League** was established in 1994 to continue the scientific research formerly conducted by NASA. When funding for NASA's SETI research was cut, it was left up to a handful of visionary pioneering scientists to privatize the search for intelligent life in the universe.

**The SETI League** is a 501 (c)(3) not-for-profit scientific research and education organization. Universal in its scope, it is international in its composition, with more than fifteen hundred volunteers in five dozen countries participating in the organization's activities.

*Project Argus* is a prime example of the type of work **The SETI League** is involved in. *Project Argus* is an effort to deploy and coordinate roughly 5,000 small radio telescopes around the world, in an all-sky survey searching for microwave signals which might possibly be of intelligent extra-terrestrial origin. When fully operational, *Project Argus* will provide the first ever continuous monitoring of the entire sky, in all directions in real time.

**SETI League** members have developed the necessary hardware, software, protocols, and procedures for distribution worldwide. Traditional research grade telescopes, of the type used by NASA, can view only a small fraction of the sky at a given time, typically on the order of one part in a million. To achieve the goal of continuous all-sky coverage would require one million telescopes, properly located and aimed. The cost for such an enterprise would exceed the Gross Planetary Product.

*Project Argus* has taken an innovative approach to the problem. By employing much smaller, relatively inexpensive amateur radio telescopes, built and operated by **SETI League** members at their own expense, we will be able to achieve an all-sky view for an infinitesimal expenditure.

Only 5,000 of these smaller instruments, properly coordinated, are required to see in all directions at once. The equipment, though modest, is capable of detecting microwave radiation from likely sources out to a distance of several hundred light years.

This is an example of the innovative volunteer projects in which members of **The SETI League** are engaged. And, while the relative cost of these types of projects is low, there are hard costs nonetheless.

To continue this research and expand **SETI League** activities, the organization needs to raise \$600,000 over the next three years. Membership dues, gifts, and contributions will certainly help, but it is necessary to expand funding sources beyond current levels and current sources.

**The SETI League** is seeking investments of \$50,000 from foundations, corporations, and individuals, those who are committed to scientific research and radio astronomy.

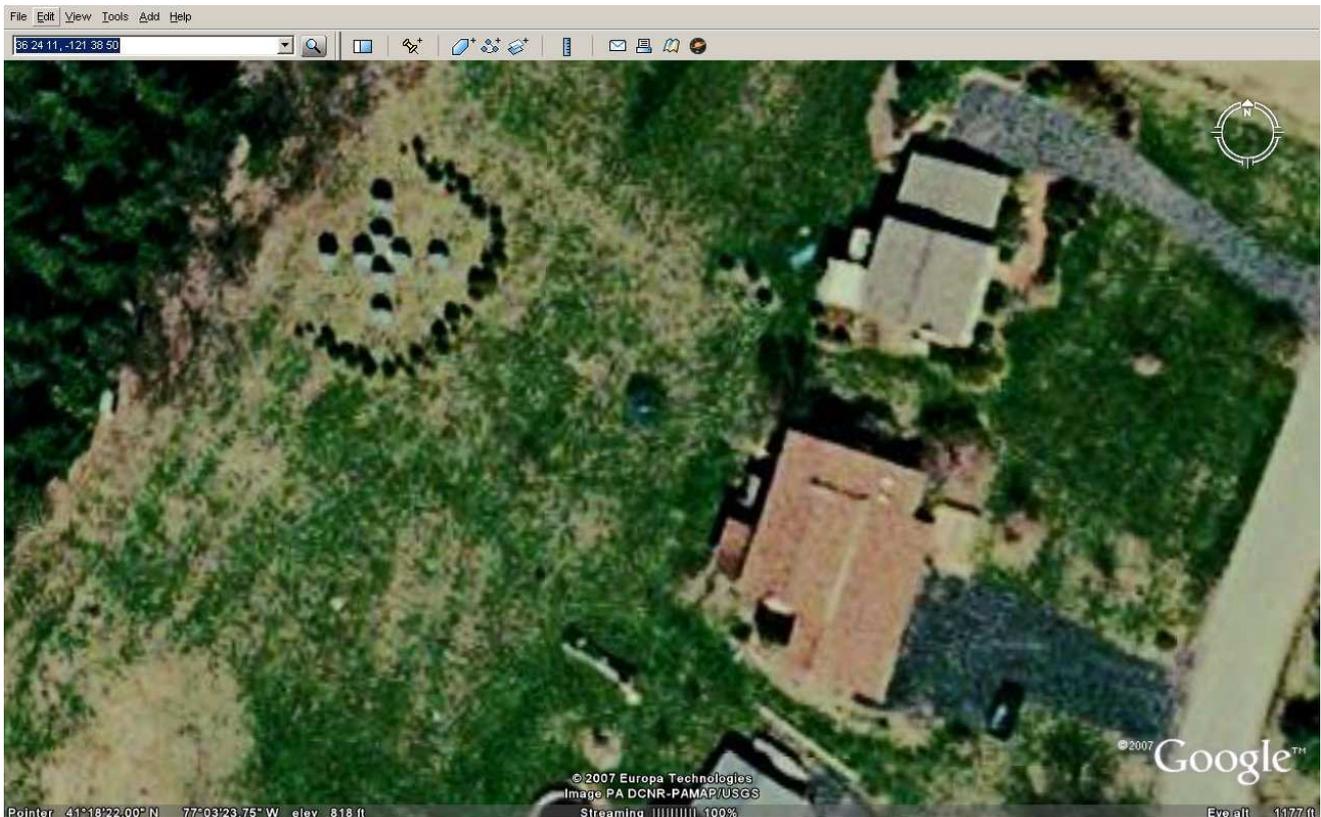
We welcome the opportunity to present our annual report and a full proposal for funding. And while spin-off technologies and applications are an inevitable result of scientific exploration and discovery, it is the search that inspires us, that causes us to lift our eyes to the heavens and wonder.



## Program Service Accomplishments – Science

During 2008, The SETI League and its members made the following contributions to radio astronomy and SETI science:

- Supported 143 Project Argus radio telescopes built by members in 27 countries on all seven continents. Coordinated their SETI and astrophysical observations. Argus stations analyzed and cataloged several new candidate signals during 2008.
- Members' stations monitored telemetry signals and science beacons from several NASA and ESA interplanetary space probes.
- Provided Committee leadership (as co-chairman) to the SETI Permanent Study Group of the International Academy of Astronautics.
- 265 SETI League members continue to lend computer support to the SETI@home distributed computing experiment, through the Berkeley Open Infrastructure for Networked Computing (BOINC).



The eight dishes of The SETI League's *Very Small Array* radio telescope are clearly visible in this view from space. (Google Earth image)



## Program Service Accomplishments – Technology

During 2008, The SETI League and its members made the following contributions to technology design and development:

- Provided electromagnetic link analysis for an Interstellar Radio Message (IRM) beamed toward Alpha Centauri.
- Coordinated and archived four closed technical email lists.
- Inducted one additional amateur radio astronomer into the Extra-Terrestrial Century Club, for a total of fifteen ETCC honorees.



Several SETI League members were active participants at the 2008 technical conference of the Society of Amateur Radio Astronomers, a SETI League affiliate society, at the National Radio Astronomy Observatory, Green Bank WV USA. (SARA photo)



## Program Service Accomplishments – Public Education

During 2008, The SETI League and its members made the following contributions to educating the public on SETI science and technology:

- Executive Director Emeritus delivered seven public lectures in three countries, dealing with radio astronomy techniques and related SETI science.
- Our members coordinated the 2008 Technical Conference of the Society of Amateur Radio Astronomers (SARA), a SETI League affiliate, editing and contributing to the Proceedings for that Conference.
- Executive Director Emeritus served as Vice President for the Society of Amateur Radio Astronomers (SARA), a SETI League affiliate.
- Executive Director Emeritus published thirteen technical articles in scholarly journals and the popular press, plus five SETI related papers in Conference proceedings.
- Provided webmastering services to several sister organizations, including the Society of Amateur Radio Astronomers, International Academy of Astronautics SETI Permanent Study Group, and Invitation to ETI.
- Distributed CD copies of "The SETI League Technical Manual" and "Tune In The Universe!", a radio amateur's guide to the Search for Extra-Terrestrial Intelligence.
- Officers and volunteer Regional Coordinators answered numerous email queries from around the world on technical and societal aspects of SETI.
- Distributed numerous print and CD copies of various SETI League Conference Proceedings.
- Distributed copies of two music CDs including numerous SETI songs.



Claudio Maccone of Italy was among the dozen SETI League members to visit the Nancay Radio Telescope, following the First UNESCO Symposium on Searching for Life Signatures, held in Paris in September, 2008.

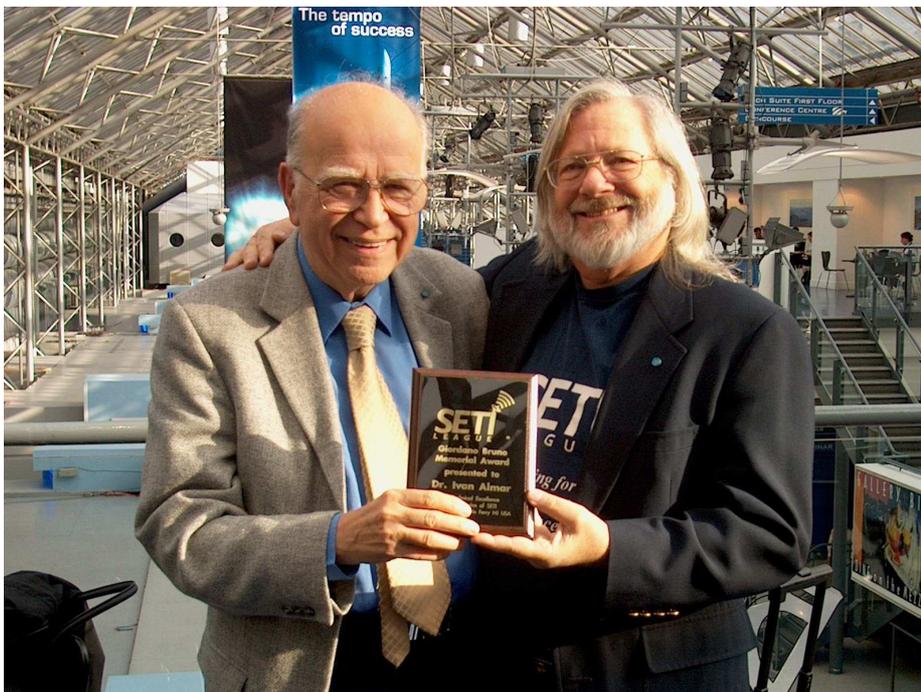
(SETI League photo)



## Program Service Accomplishments – Media and Outreach

During 2008, The SETI League and its members engaged in the following media and outreach activities:

- Published four issues of SearchLites, the quarterly newsletter of The SETI League, Inc.
- Coordinated and archived two open public email lists.
- Distributed nine Press Releases and twelve Editorials to over 700 media outlets worldwide.
- Filed 52 weekly updates to The SETI League's extensive website, bringing its total document count to 7630 objects.
- Mailed out dozens of membership brochures to email requesters.
- Several of our 60 volunteer Regional Coordinators in 46 countries conducted print and broadcast media briefings and interviews.
- Executive Director Emeritus granted print media and broadcast interviews in the US, UK, India, and France.
- Awards Committee chairman presented the fourteenth annual Giordano Bruno Memorial Award, the seventh annual Orville N. Greene Service Award, and twelve SETI SuperStar Awards.



At the 2008 International Astronautical Congress in Glasgow, Scotland, SETI League executive director emeritus H. Paul Shuch (right) presents the annual Giordano Bruno Memorial Award to Hungarian astronomer Ivan Almar, for technical excellence in the furtherance of SETI science.

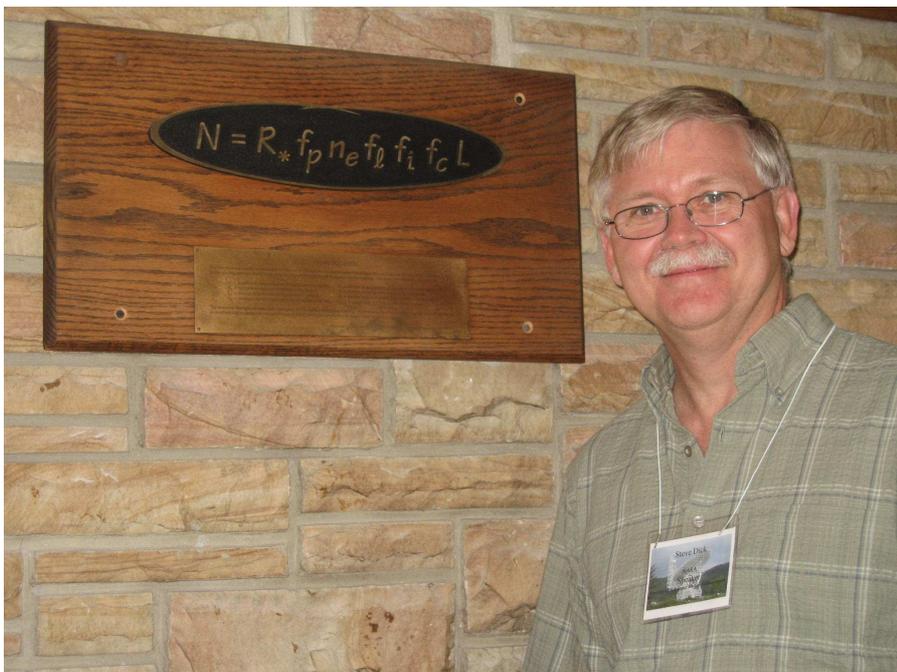
(SETI League photo)



## Trustees and Officers

In accordance with Article V, Section 2 of the Bylaws of The SETI League, Inc., as amended, “The Board shall consist of all officers along with such other trustee positions as determined by the Board of Trustees at their annual meeting.” At its annual meeting on 20 April 2008, the Board confirmed the following officers and trustees to serve for a term of one year:

<u>Appointee</u>	<u>Position</u>	<u>Professional Affiliation</u>
Richard Factor	President	Chairman, Eventide Inc.
A. Heather Wood	Secretary/Treasurer	Executive Secretary, The SETI League, Inc.
Martin Schreiber, CPA	Trustee	Accountant, Brand Sonnenschine LLP
H. Paul Shuch, Ph.D.	COO	Executive Director Emeritus, The SETI League, Inc.

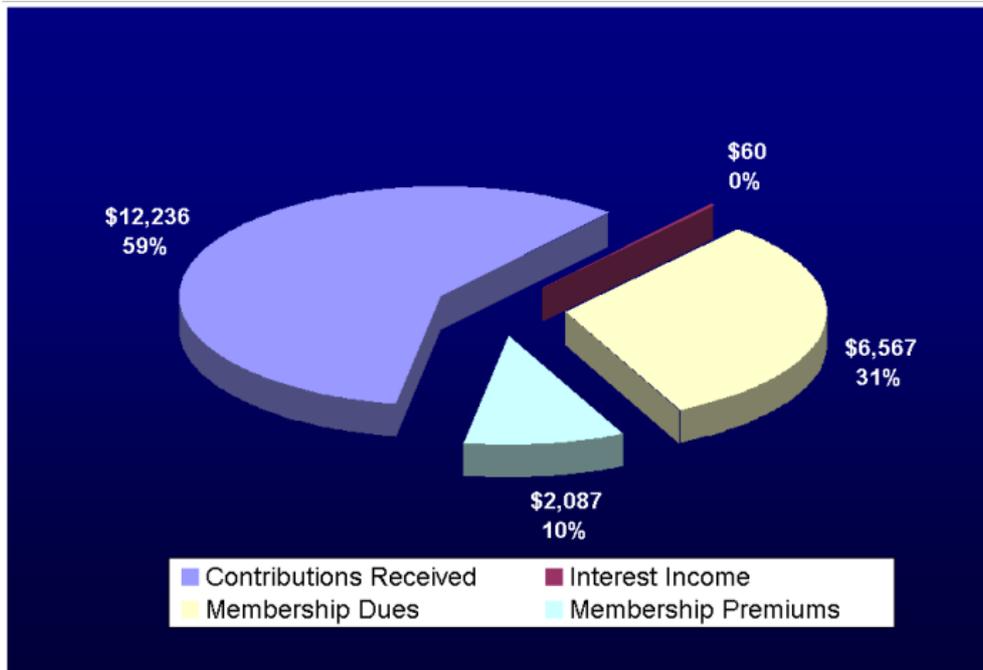


SETI League member Steven Dick, NASA’s Chief Historian, was keynote speaker at the 2008 SARA Conference at NRAO Green Bank WV. Here, he has his first look at the Drake Equation Plaque, which graces the wall of the room where Frank Drake first wrote his famous equation in 1961.

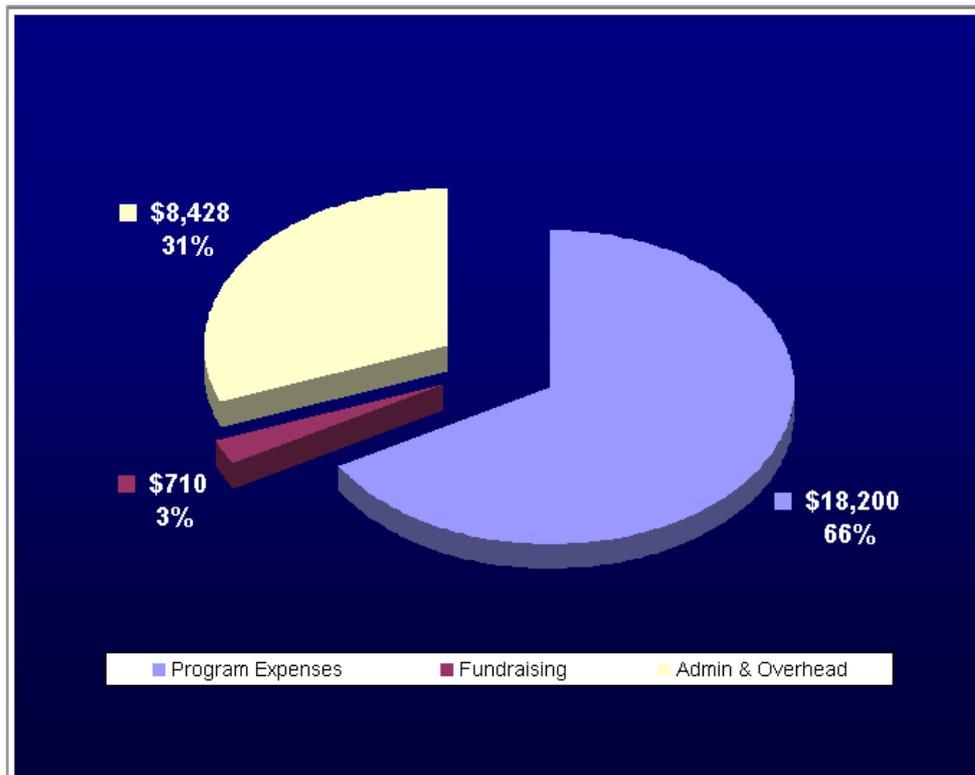
(SETI League photo)



## Financial Highlights



2008 Revenues

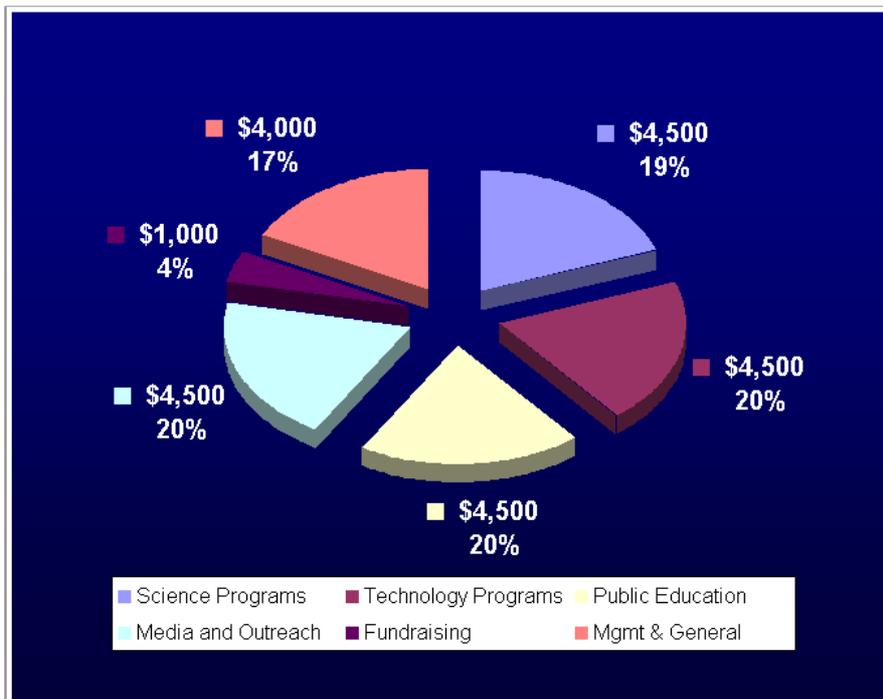


2008 Expenses



### Annual Budget – 2009

990 Line	REVENUES:	2009 (projected)
1d	Dues, Grants & Contributions	20,900
4	Interest & Investments	50
12	<b>Total Revenues:</b>	20,950
	EXPENSES:	
13	Educ. and Scientific Programs	18,000
14	Management & General	4,000
15	Fundraising	1,000
17	<b>Total Expenses:</b>	23,000
18	<b>Excess or (Deficit) for the year</b>	(2,050)
	BALANCE SHEET:	
19	Beginning Net Assets	4,943
21	Ending Net Assets	2,893



2009 Projected Expenses



## 2008 Donors

The SETI League recognizes the extraordinary commitment of our Major Donors, each of whom has provided contributions of \$1,000 US or more, in cash or in kind, during 2008:

- Mr. Richard Factor (USA)
- Mr. Mark G. Pankhurst (British West Indies)
- Second Foundation (USA)
- Prof. H. Paul Shuch (USA)

We gratefully acknowledge the following supporters, who during the past year have made financial or in-kind contributions to The SETI League above and beyond membership dues:

- Anonymous
- Mr. Scott Dorsey
- Mr. Duane Elms
- Ms. Leslie Fish
- Mr. Steve Haug
- Dr. Jordin Kare
- Mr. Dennis Murphy
- Dr. Malcolm Raff
- Random Factors
- Mr. Christopher Rossie
- Ms. Ariel Rogers
- Mr. Andrew Shuch
- Mr. Harold Stein
- Mr. Bill Sutton
- Ms. Susan Tonkin
- Ms. Lori Walton

The SETI League welcomes the following individuals, who became new members of The SETI League during 2008:

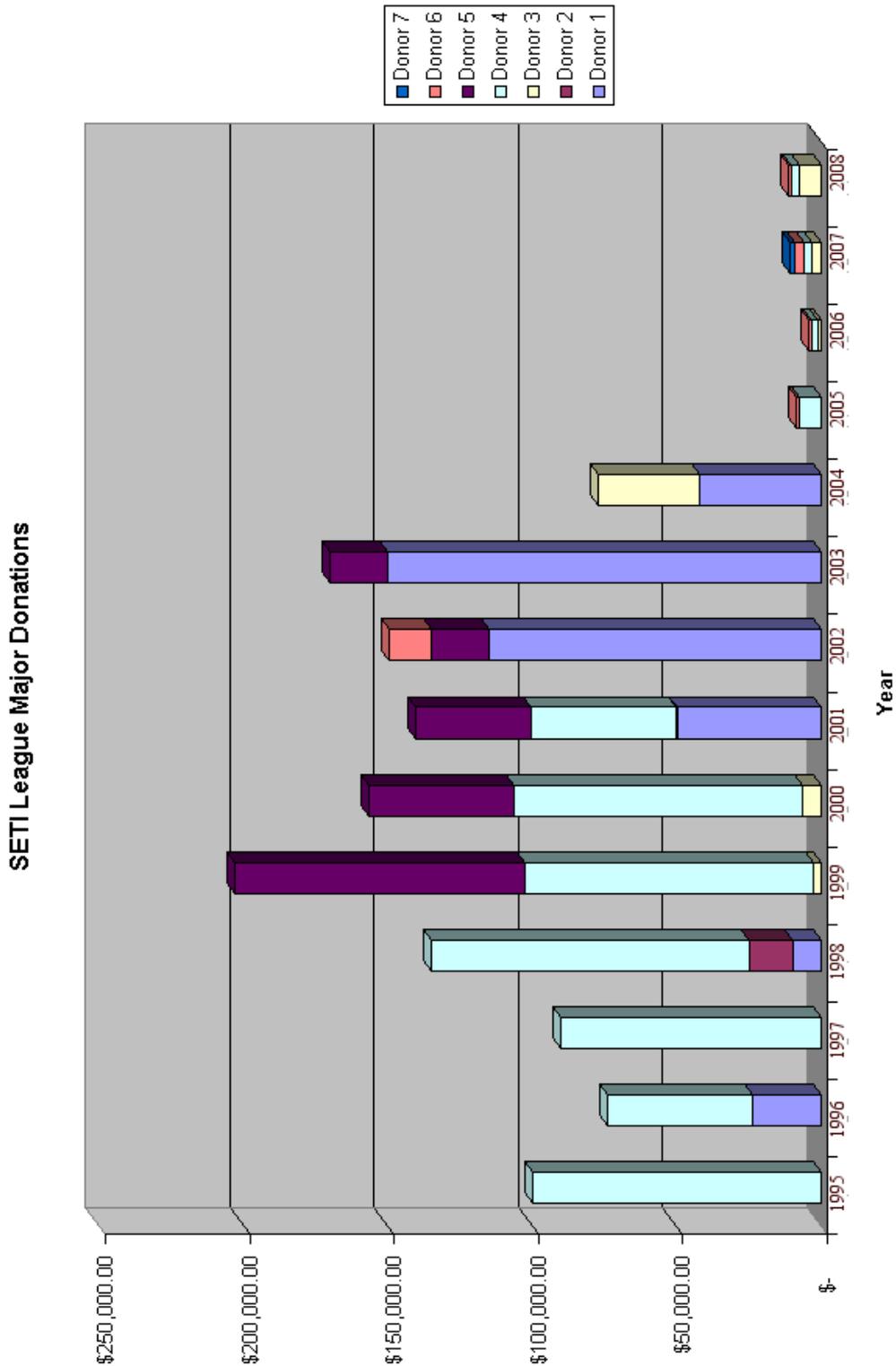
- Chris Birke (USA)
- Bruce Bodner (USA)
- Christopher Choulos (USA)
- Paul Davies (USA)
- James Deavin (Australia)
- Linda Fippin (USA)
- Brian Fivas (USA)
- Dan Fritze (USA)
- Christopher Griffiths (Australia)
- John Jeanette (USA)
- Tom Kloecker (USA)
- John & Marjorie Kuehn (USA)
- Bill & Melinda Lord (USA)
- William Marshall (USA)
- Jim Moravec (USA)
- Jasem Mutlaq (Kuwait)
- Rich Nagel (USA)
- Charles Osborne (USA)
- Tibor Pacher (Germany)
- Bill Seymour (USA)
- Thomas Shadle (USA)
- Barry Voss (England)

The SETI League further acknowledges the following member, who became a Life Member of The SETI League during 2008:

- Martin Heidemann (Germany)



## Major Donations, Since Inception

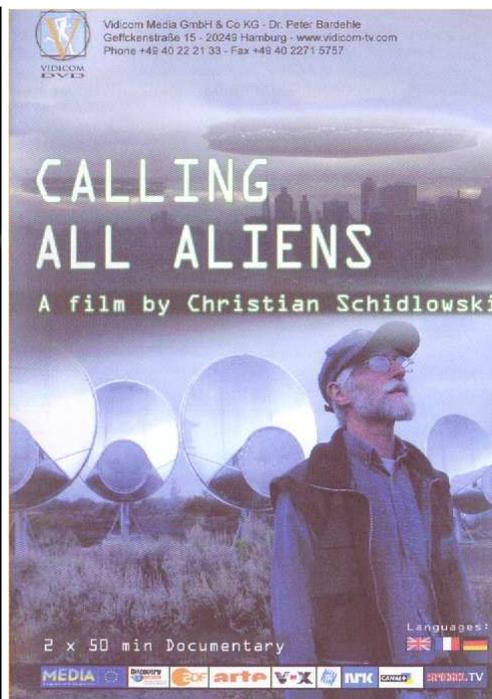
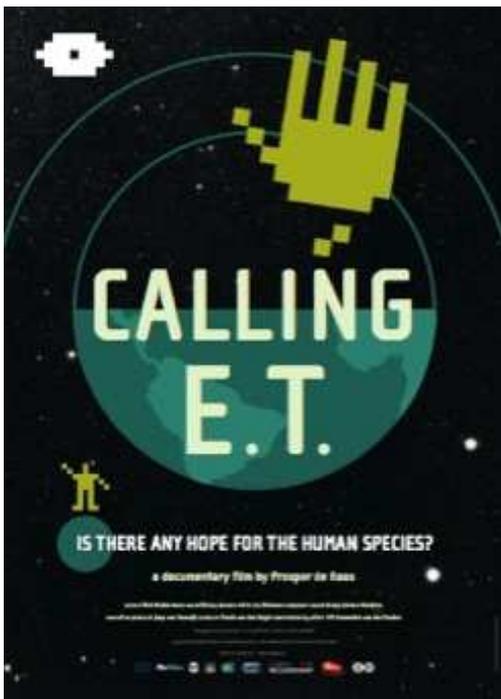




## Additional Information

For additional information about The SETI League, Inc. and its various educational and scientific programs, please see the following pages on The SETI League website.

Main Page	<a href="http://www.setileague.org">http://www.setileague.org</a>
Financial Information	<a href="http://www.setileague.org/finances">http://www.setileague.org/finances</a>
Membership Services Department	<a href="http://www.setileague.org/admin">http://www.setileague.org/admin</a>
Publications Department	<a href="http://www.setileague.org/articles">http://www.setileague.org/articles</a>
Press Relations Department	<a href="http://www.setileague.org/press">http://www.setileague.org/press</a>
Photo Gallery	<a href="http://www.setileague.org/photos">http://www.setileague.org/photos</a>
Technical Programs:	
Project Argus	<a href="http://www.setileague.org/argus">http://www.setileague.org/argus</a>
Very Small Array	<a href="http://www.setileague.org/vsa">http://www.setileague.org/vsa</a>
Array2k	<a href="http://www.setileague.org/array2k">http://www.setileague.org/array2k</a>
Moonbounce Beacon	<a href="http://www.setileague.org/eme">http://www.setileague.org/eme</a>
Awards Program	<a href="http://www.setileague.org/awards">http://www.setileague.org/awards</a>
Hardware Support	<a href="http://www.setileague.org/hardware">http://www.setileague.org/hardware</a>
Software Support	<a href="http://www.setileague.org/software">http://www.setileague.org/software</a>
Technical Symposium	<a href="http://www.setileague.org/seticon">http://www.setileague.org/seticon</a>
Dr. SETI® On Tour	<a href="http://drseti.org">http://drseti.org</a>



The SETI League was featured in two new documentary films in 2008. Prosper de Roos' film *Calling ET* premiered at the Amsterdam Film Festival in November, while Christian Schidlowski's *Calling All Aliens* was aired on the ARTE network in France and Germany.