# AAVSO Annual Report 2007–2008 25

### Annual Report of the Director for Fiscal Year 2007-2008

### Arne A. Henden, Director

### Settling In

We've now been in our new Headquarters building for eighteen months (February 2007 to September 2008). They have been some of the most active and exciting months in our association's history. The building itself has been perfect. It divides nicely into three segments: an old (original) house, an "annex" (the original *Sky & Telescope* warehouse), and a two-story office complex. We found that our staff and the archives actually fit into the office area. While that area had about the same square footage as our entire 25 Birch headquarters, it is laid out in a more logical manner and things just seemed to "fit." The annex has four offices, a storeroom, two bathrooms, a kitchen and a large open area. Michael Saladyga is using two of the offices as temporary space for the archive, containing material that needs to be sorted and logged before moving to the office archive space. One office was reserved for the fund-raiser (originally Gary Walker, since November 2007, Michael Simonsen), and the remaining office is for visitors.

We made use of the open area for our Fall 2007 annual meeting. It holds about 100 people comfortably, both for theater-style seating during the meeting, and round tables for the banquet. Because of its shape, we installed two projectors and screens, both showing the powerpoint presentation of the speaker. We set up a nice audio system with front-mounted speakers. Attendees seemed to think the setup worked well! We were also able to have noontime lunches, including the first annual AAVSO cookout. This space has great potential for a permanent conference and workshop venue, but needs considerable funds for renovation. The suspended ceiling can be removed, giving an additional fifteen inches of ceiling height; the kitchen needs to be remodeled; better projectors need to be purchased, along with chairs; etc. The surrounding neighborhood is undergoing change, and some of our favorite restaurants have closed. New construction is underway, and we

The versatility of the new AAVSO Headquarters : at left, the HQ annex room as set up for the paper sessions; below, the annex becomes a banquet room







### 2. The Year in Review

are assuming that new restaurants will also be included. The Best Western Tria hotel, the closest lodging to Headquarters, is adding rooms. We've found that the lowest lodging rates are in the spring, so we will be moving the annual meeting to the spring to lower costs to our members.

The original building on the property was a house, constructed in 1949. When Charles Federer purchased the property for *Sky & Telescope* in 1956, he converted the house into office space. It produced interesting offices; Susan Lit's office, for example, was the original dining room and still had a china cabinet in one corner. The motif was basic 1970s when we purchased the office; black wrought iron railings and lots of wood sheet wall paneling. There were doorways between the house and the two-story office complex on both floors, but to get to a specific office meant that you had to walk through other offices since no hallway was present.

As we didn't need the old house space for our offices, we pondered potential uses for the space. It was in dramatic need of refurbishment, with old carpeting, holes in the walls, fluorescent fixtures that had yellowed, etc. David Williams, President of the AAVSO at the time, suggested that it could be made into a Director's Residence. By doing so, we could refurbish the space, improving the value of the property, and provide a "perk" of a house in Cambridge (a very expensive place!) to future Directors. We also realized that a portion of the renovation could be used as a "guest suite" for AAVSO visitors. After review by our architects, Design Associates, and consultation with the City of Cambridge, we settled on a basic plan and selected a contractor (Daniel Construction). In January 2008, construction (well, demolition actually) began, and the contractor was finished with his portion of the work by mid-August 2008. The Hendens did all of the sanding, leveling, and painting for the entire house, as well as construction of shelves in the closets and daily cleanup of the construction site. They made a major donation towards building costs as well.



The first guests in the Walter A. Feibelman Guest Suite were Tom and Anna Fay Williams in July 2008. Many more visitors have stayed since, and it is rapidly becoming one of the best features of the new Headquarters. The Hendens are enjoying the house and the lack of a commute. We're also finding that it makes the headquarters more secure; we are on top of any false security or fire alarm; we keep the outside cleaner than before.

Two views of the new Walter A. Feibelman Guest Suite at AAVSO Headquarters

### **Economic Downturn**

The stock market peaked in October 2007. We were able to make the original purchase of the *Sky & Telescope* building near the peak, and also to pay for most of the house renovations while it was still high. However, by July 2008 the market had dropped 20% from the October high, and dropped rapidly thereafter. While this report only extends until the end of September, it is painfully obvious to everyone reading that the market continued to decline, reaching a bottom around November, 40% below that high recorded only a year earlier. The economic forecast is pretty dismal, with the banking crisis, subprime loans, automobile industry in decline, and everyone worried for their jobs and financial security. The AAVSO is no different. The major part of our income is from our Endowment, paying basically for all staff salaries. Additional funding comes from donations, membership dues, and external grants from agencies like the National Science Foundation.

Our financial managers saw the steady decline in the market, and made sure that any bonds that matured were kept in cash reserves rather than being reinvested. This has given us about a one-year cushion before the "virtual losses" of our investments become real losses. If the market were to make a turnaround in the next year, we'd be in good shape. Only a fool would close their eyes to the situation, though. We are closely monitoring the economy, are doing some initial belt-tightening, and will most likely make some adjustments this coming spring to keep the AAVSO strong and vibrant. We also made the decision to ask for more donations from our membership, and to make grant applications for the upcoming NSF and NASA review cycles.

No crystal ball is perfect. We are aware of the problems and are developing several future paths, depending on the health of the economy.

### Internet Presence and the AAVSO Website

The most visible aspect of the AAVSO is our website. While staff thoroughly enjoys the new headquarters building, what you see as an observer are the homepage and the features that help you in your observing. We work diligently to ensure that the website is useful to our members and observers, as well as to outside researchers and anyone who happens across it. Kate Davis is our Webmaster, and has spent a large fraction of the year adding features and preparing for the impending website update in FY2009.

You've noticed that all of the education pages have been updated this year? These pages were rewritten by Mike Simonsen, and added to the website by Kate. Lots of these "behind the scenes" administrative tasks are handled by Kate. She tries to make the site work well for users, and works hard to make staff duties easier and more reliable. Many small ancillary programs, like the Special Notice and Alert Notice interfaces, have been written by Kate.

We've implemented a variable star bookstore. While all items in the bookstore show up on our webpage and you order through the page, it actually links to Amazon for purchase. The nice thing about this is that every purchase (while it costs the same to the buyer) results in a donation to the AAVSO. Every few months, we get a gift certificate that we can use to buy things through their site, such as books for our library or office supplies. It is a *really* simple way to donate to the AAVSO. Kate Hutton and Mike Simonsen have spent a considerable amount of their time reviewing many of the books listed in the store. Just reading the reviews will be helpful to you--not all of the books are dry tomes! If you have additional books that you would like to see added to the bookstore, submit your reviews and get them added.

One of the most visible changes to the website this year was the addition of the visual and extended AAVSO standard formats for data submission. We've been handling the output files from many software vendors over the years, and finally decided that it was not an efficient use of staff time to support the changes that each new version brought. In addition, what a software vendor might think is unimportant may be essential for proper use of photometric data. Moving to the MySQL relational database also gave us the opportunity to increase field sizes so that you are less limited in the length of object names or any extra comment that you might want to make about an observation.

Towards those ends, we published standards for two formats: visual data submission and CCD data submission. For visual observers, the format is very similar to what was previously available, and so should be very straightforward to use. For CCD observers, we wanted to support pure differential photometry as well as ensemble photometry, and wanted additional information such as transformation status, error analysis and airmass to be included. The Extended Format is thus considerably more complex, and designed for computer-generated files. We contacted all of the major software vendors, supplied them with a description of the new standard, and they were unanimously in favor of updating their software to support the new file format. With this new format, Kate only has to support one format in her WebObs submission program. This eliminates a lot of logical tests and improves reliability of the software.



Total data transferred on the AAVSO website. Comparispn of 2006–2007 and 2007–2008 in Gigabytes

We averaged about 120 gigabytes per month of transferred data this past year, with the largest transfer occurring in December. We served about 48,000 distinct hosts per month, and had about 30,000 home page hits per month. These home page hits are often the less-frequent visitors, as most observers bookmark the lower-level page that they need and don't hit the home page nearly as frequently. For example, we average about 500,000 page hits per month for everything other than the homepage.

Probably the biggest presence, though, are the main observer tools: VSP, the finding chart plotter; VSX, the variable-star catalog; LCG, the light curve generator; and WebObs, the access portal for data submission. All of these tools were revised this year because of updates to our MySQL relational database for the observations.

The computer hardware continues to be <sup>Number of charts plotted by VSP duling PT 2007–2008</sup> improved at Headquarters. We now have two 7-terrabyte file servers to handle the AAVSO International Database (AID), as well as providing space for storage of CCD images from our robotic observatories. The daily backups were getting too large for our tape archival system, so we have now switched to an external hard drive backup system.

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### **Observation Database**

In FY2008, we collected 1,874,893 observations: 792,668 of these were visual observations; 1,546 were PEP or photographic observations. The remainder (1,080,679) were CCD observations. The CCD totals remain high, as we get many thousands of observations for any time-series campaign (SS Cyg is an example). The two charts on the following pages show the annual submission totals since 1911, and the total submitted observations ("Megasteps") since 1911. You can see that the trend is exponential, so that by 2011, we will be collecting 15 million observations per year!

6 250 e **s** 200 y **o** 150 e **c** CD p EP o **s** 200 200 2001 2002 2003 2004 2005 2006 2007 **Year** 

Types of observations received from observers during FY 2007–2008

The AAVSO CCD committee began a program of *BVRI* observations of a number of variable stars back in the early 1990s, just as CCD cameras were becoming available to the amateur community. Eight stars were chosen to monitor, mainly long period variables. While recent data for this program are being entered through the normal WebObs procedures, several years of early observations were only available in paper format. David Coit, our Margaret Mayall Assistant in 2007, entered these observations in computer-readable format. Sara Beck and Elizabeth Waagen proofread this entry and converted the observations into our standardized format for submission. A total of 4,338 observations were added in this manner. An example of the resultant light curves is VX UMa. If you plot the 4000-day light curve, so that decade-old data are visible, you will see the new observations on the left. We are happy that this pioneering CCD work is finally available for public access!



Number of charts plotted by VSP during FY 2007–2008





Work continues on importing the RASNZ database. A large fraction of the observational data comes from just a few observers, such as Albert Jones and Danie Overbeek, and so were straight-forward to import. The remaining observations require assigning observer codes to those observers who were not regular AAVSO submitters, as well as determining what charts and comparison stars were used. We hope to finish this project in the near future.

We had 4,248 data requests from a multitude of researchers during the year. The data request rate is pretty constant throughout the year, but has definitely continued its upward trend.



Researchers who used AAVSO data or services during FY 2007–2008 Areas in which AAVSO data or

Areas in which AAVSO data or services were used during FY 2007–2008

Sara Beck wrote zapper, a stripped-down version of zap, the tool that Headquarters staff use to validate (quality check) observations. When validating, we choose a star, pull up all of the data for that star, and then look for discrepant points. When one is found, we do additional checks to see if the observer is always too bright or too faint (by connecting observations from the same observer), an indication that the observation is "ok", just offset from other observers. zapper gives us lots of flexibility in plotting and does many tasks automatically, such as providing an email template to request clarification from the observer.

We have three staff members who validate data on a part-time basis. This gives some flexibility in case one staff member is ill or on vacation, and keeps the amount of effort per staff member at a reasonable level. However, we don't have time to validate every star with data submitted to the AAVSO. The slimmed down zapper program gives validation capability to the general membership. You can run this Java program on your local computer, look at your favorite stars, and mark points that appear to be discrepant. The information regarding those discrepant observations is then automatically uploaded to the AAVSO, and can be used in an automated manner to point out possible errors to the staff validators. Using zapper helps reduce staff time and results in higher-quality data in the AAVSO International Database. We highly recommend that you give zapper a try!

### **International Cooperation**

We acknowledge with appreciation the observations sent to the AAVSO by members of the following variable star associations, either individually or as a group, for inclusion in the AAVSO International Database for dissemination to the astronomical community worldwide:

- a. Agrupacion Astronomica de Sabadell (Spain)
- b. Asociacion Amigos de la Astronomia (Argentina)
- c. Association Française des Observateurs d'Étoiles Variables (AFOEV)
- d. Association of Variable Star Observers "Pleione" (Russia)
- e. Astronomical Society of Southern Africa, Variable Star Section
- f. Astronomischer Jugendclub (Austria)
- g. Astronomisk Selskab (Scandinavia)
- h. Brazilian Observational Network REA
- i. British Astronomical Association, Variable Star Section
- j. Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)
- k. Grupo Astronomico Silos (Spain)
- I. Israeli Astronomical Association, Variable Star Section
- m. Koninklijke Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)
- n. Liga Ibero-Americana de Astronomia (South America)
- o. Madrid Astronomical Association M1 (Spain)
- p. Magyar Csillagàszati Egyesület, Valtózocsillag Szakcsoport (Hungary)
- q. Norwegian Astronomical Society, Variable Star Section
- r. Red de Observadores (Montevideo, Uruguay)
- s. Royal Astronomical Society of Canada
- t. Royal Astronomical Society of New Zealand, Variable Star Section
- u. Ukraine Astronomical Group, Variable Star Section
- v. Unione Astrofili Italiani (Italy)
- w. URSA Astronomical Association, Variable Star Section (Finland)
- x. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

In March 2008, I went to Australia to give talks and workshops at many of their Society meetings. Amateur astronomy is alive and well in Australia, with many thousands of observers belonging to one of the societies. I also visited with Elizabeth Hodgson, as Doug Hodgson passed away in December 2007. She wanted to honor his memory by donating his telescopes to groups that could make use of them. Two telescopes went to the Amateur Society of Western Australia. The larger Meade 12-inch LX200 went to the Deniliquin astronomy club of New South Wales, along with Doug's SSP-3 photometer.

The AAVSO held a joint meeting with the British Astronomical Association (BAA) in April 2008. Minutes of this meeting are given elsewhere. We felt that it had been too long

since we acknowledged the contributions of the BAA towards variable-star astronomy and their collaboration with the AAVSO, and so were very happy that the BAA invited us to join their meeting. Several European observers also attended, making this a true international gathering.

I went to Potsdam, Germany in September to talk with the Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV). While I gave a review of the AAVSO and its activities, a major part of the visit was to talk to the officers of their association, answer questions that they might have about our joint efforts, and to improve our support of their organization.

#### Software

As mentioned above, we released two standard observation submission formats this year. These are supported by most of the software vendors, with others promising to add these formats in their next versions. The new formats meant extra coding at HQ as well, to add them to WebObs, emailobs, and pcobs. Len Abby made the changes to PCObs; Aaron updated Emailobs, and Kate made the WebObs enhancements. We also wrote an article for the home page regarding the new formats, and added a detailed description of the formats to our internal staff pages.

Matthew Templeton and Sara Beck have made modifications to the PEP submission program and improved the comparison star photometry. Dan Gray (SciTech) made modifications to the SSP-4 to automate its functions, and wrote control software for the photometer that will be used by the AAVSO near-infrared photometry group.

Kate Davis took a course on Discrete Mathematics with Computer Science Applications. Richard Kinne went to the NVO Summer School, held in Santa Fe.

Sara wrote zapper, a user-friendly version of the zap program that is used by staff to validate (quality check) incoming observations. Sara's program is written in Java and runs on the user's computer. As described above, users review observations and click on discrepant points; these points are then automatically transferred to the staff for inspection.

A new version of the Variable Star Plotter (VSP) was released in December 2007. This version removed NOMAD as the main source for star positions and magnitudes. Instead, VSP now uses Tycho for bright fields, UCAC3 for fainter fields, and only uses NOMAD for the faintest fields. The result is much nicer looking charts with fewer discrepancies from the real sky. Michael Koppelman continues his great service of maintaining this important software tool for the AAVSO.

Kate modified an administrative tool written by Chris Watson for the Variable Star Database (VSD) that enables staff editing and updating of this important database. The program will edit single records as well as accepting batch uploads of new sequences.

### **Observing News**

The AAVSO had a tradition in earlier years of giving honorary membership to those members, observers, and friends who contributed over and beyond the call of duty to the variable star community. The Council has revived that tradition, with the award of honorary membership to Thomas Droege and Roger Pickard in FY2008. Tom was the driving force behind The Amateur Sky Survey (TASS), building many telescope systems to survey the northern sky. He ran three systems from his home in Illinois, gave others freely to members of the group, and offered advice at every turn. He passed away in January 2008. Roger is the current President of the British Astronomical Association, but is the long-time leader of its Variable Star Section. As the VSS leader, he interacted with both Janet and me over the years, working hard to create a strong alliance between our groups.

Gerry Dyck reached an important milestone this year, receiving his award for 150,000 visual observations. If you assume that each observation takes perhaps ten minutes to perform and report, then this total means that Gerry has contributed 25,000 hours to science and the AAVSO just from observing, not counting his many hours of volunteer work and mentoring!

Arto Oksanen (Hankasalmi Observatory) uses a 40-cm R/C telescope and SBIG STL-1001E CCD as part of a group effort in Finland. Arto concentrates on cataclysmic variables, obtaining many light curves of outbursting objects. He also is an active member of the High Energy Network, and observes GRB afterglows whenever the field is visible at his observatory. The HEN effort paid off on October 10, 2007, when he discovered the optical afterglow from GRB 071010B. His time series of the fading of the optical counterpart were the only ones from the first few hours, and have been used in a *JAAVSO* article by Arto and Matt.

Members volunteer their time and effort in promoting the AAVSO. Kate Hutton used the AAVSO traveling display at the Riverside Telescope Makers Convention in May 2007, with many visitors passing by the booth and picking up our brochure. She did the same thing at the new Pacific Astronomy and Telescope Show, held at the Pasadena Convention Center in September 2008. About 1,000 people attended and passed by our booth. These meetings are attended by many of the high-end amateurs who may not have considered doing photometry with their equipment, so we are really happy when someone offers to stand at a booth or poster for hours and answer questions.

One suggestion that is often made to Headquarters is to provide more guidance to the observers in selecting their targets. Towards that end, Mike Simonsen has taken the *AAVSO Bulletin* (predicted dates of maxima and minima of long period variables) and has parsed out the stars that are listed as needing more observations. He reinstated the Needs More Observations Planning Tool in April 2008, which is uploaded to the website every month. While these stars are not to be considered "priority targets," they do offer some guidance towards under-observed stars that could stand some more attention.

The big change this past fiscal year was the photometry improvement for the comparison star database. In October 2007, we uploaded 21,826 photometric values for comparison stars in the Variable Star Database (VSD) that is used by the Variable Star Plotter (VSP) to mark sequence stars on the plot and in providing an optional table of photometry. We updated VSD a few more times during the year, with the final update occurring in early September 2008. At that point, nearly all sequence stars had reliable photometry, coming from multiple catalogs. The new photometry has highlighted many fields where the sequences need revision. The chart error tracking tool, CHET, was updated and now handles all chart errors reported by our observers. A new sequence team was formed, initially led by Mike Simonsen, that will go through the charts, revise sequences and add future sequences for new fields. Many thanks go out to Mike Simonsen, Michael Koppelman, Vance Petriew, Kate Davis, Matt Templeton, and Aaron Price for their work on this phase of AAVSO chart making.

We have had many campaigns this past year. Brad Schaefer is predicting an outburst of U Sco, a dwarf nova that hasn't had an outburst for the past decade. He has requested continued monitoring of the star during 2008 and 2009 in anticipation of the outburst. Gordon Sarty is observing high mass X-ray binaries, obtaining spectra at DAO. While he has requested monitoring of his target list, he also has provided an opportunity for AAVSO observers to assist in the spectrographic observing. If you have ever wanted to use a big telescope, here is your chance! Tim Crawford, Richard Huziak, and others have already taken advantage of the offer.

Paula Szkody and her team continue to use the Hubble Space Telescope (HST) to obtain spectra of SDSS cataclysmic variables. The HST operations team requires that these targets be in quiescence at the time of the HST observations. Therefore, careful monitoring of the targets in the day or two preceding the HST observation is crucial. Many observers have contributed their observations in support of this project. Bill Dillon has been using the GRAS robotic telescope network, obtaining observations in Israel and Australia to extend the longitudinal coverage. These observations were relatively inexpensive but were extremely helpful in pinning down quiescence on some of the targets that were difficult to observe in the hours prior to the HST observation.

GRB 080319B (March 19) was the brightest optical afterglow ever seen. Observations by robotic telescopes indicate that this afterglow might have been visible by eye, if anyone looked in that direction. While visual observations by Finnish observers were made of an earlier burst, I think that seeing a 6th magnitude object suddenly appear and then fade below binocular visibility within an hour would be a once-in-a-lifetime experience!

We've also been asked to observe U Gem and SS Cyg for support of a radio observation campaign by Elmar Koerding (Univ. Southampton), as well as three other dwarf novae for another campaign by Elmar; monitor SS Aurigae for Patrick Godon (Villanova Univ.) in support of an XMM-Newton project; monitor a long list of tremendous outburst amplitude dwarf novae (TOADs) for Steve Howell, so that he could trigger a Spitzer

target-of-opportunity program if any of these objects went into outburst; obtain observations of VY ScI for Steve in support of a VLT spectroscopy program; and participate in a campaign by Greg Laughlin (Univ. Calif. Santa Cruz) to look for a possible transit of a 5-Earth mass planet in the exoplanetary system around GJ 436. We typically get about a dozen requests annually by professional astronomers to support their research, and expect these requests to expand in the coming years as more surveys find interesting objects that need to be followed.

### Robotic Telescope News

We have chosen a preliminary name for the AAVSO robotic telescope network: AAVSOnet. This network is being slowly expanded at low cost to provide access to scientific-grade systems around the world for our membership and our professional collaborators.

Every July and August, Sonoita Research Observatory (SRO) closes down for the U.S. Southwestern monsoon. This weather pattern results from a stationary high pressure system over the Four Corners in conjunction with a low pressure system that sets up southwest of Arizona. Combined, they cause a change in the prevailing wind pattern, bringing up Gulf of Mexico moisture into the American southwest. Typically, mornings are clear; daytime heating causes the build-up of thunderstorms in the afternoon and early evening; then slow clearing occurs the rest of the evening until dawn. Even when clear, the humidity is often very high. Most professional observatories such as Kitt Peak National Observatory close down during this period to perform maintenance on equipment and to prepare for the good weather that returns in September.

In 2008, the summer shutdown was extended at SRO for two reasons. The weather pattern remained moist throughout most of September, so the number of observing nights was reduced. Also, we are testing a new 50-cm telescope at SRO and needed a few good nights for experiments. This new telescope will be an addition and not a replacement, as the existing C14/Paramount/STL-1001E system is reliable and produces excellent results. The tests highlighted some remaining problems that will be addressed over the next few months. Funding for installation of this telescope will be obtained from private donors.

SRO was used on 226 nights during FY2008 for AAVSO projects, with about half of those being photometric. Many long period variable, Cepheid, and RR Lyr fields were calibrated during this year. Monitoring of many campaign objects and personal research targets was performed. We slowly released the telescope to the public and initiated observing programs for AAVSO members.

Work continues on our collaborative refurbishment of the Mount John University Observatory 24-inch (61-cm) Optical Craftsman (OC) telescope. This telescope was the first professional one at Mt. John and has been updated over the past few decades. Our agreement is to fully automate the telescope, and towards that end, Jerry Foote (Scopecraft), Dirk Terrell (SwRI), and I went to New Zealand in March to install motors, computers, and software. Nigel Frost, the Mt. John machinist, had installed a new banddrive system for the mount and helped in the motor installation by Jerry. Steve Barlow, their IT person, worked with Dirk to get the computers installed and give access to their internal network. That trip resulted in a telescope that could be manually controlled with the new drive system. We identified remaining issues, such as remote control of the secondary focus and a new dome motor system, and shipped these items down to Mt. John later in the year for installation. Currently, we are waiting for a CCD camera refurbishment to be completed, and then will return to Mt. John for final checkout of that telescope. The OC will give us access to the southern sky to provide comparison star calibration, campaign monitoring, and research projects for our members.

Former Treasurer Lou Cohen has donated his observatory to the AAVSO. This consists of a 12-inch Meade LX200; a 6-foot ProDome; and an ST-8XME CCD camera, filters, and filter wheel. The intent is to place this system on top of Headquarters. It will help in campaign monitoring; it can be used for some scientific research as part of AAVSOnet; it will be a test-bed for instrumentation; and it will help in training staff about CCD observing. Clay Sherrod has "supercharged" the system as a donation to the AAVSO, and John Menke has offered his expertise in automating the dome. We hope to complete the project during summer 2009.

The Lowell Morgan 24-inch (60-cm) telescope was officially donated to the AAVSO. Tom Smith (Dark Ridge Observatory) has offered to refurbish the telescope at cost, and transported it from Flagstaff to DRO near Weed, NM. He is busily working on the roll-off building, getting the basic structure weathertight before winter sets in, and hopes to have the refurbishment completed during 2009. This will be the second flagship 60-cm telescope of our network, giving the northern-hemisphere access. We are currently writing grants to fund new instrumentation for both 60-cm telescopes.

Tom Krajci (Astrokolkhoz Observatory) is a long-time member of the AAVSO. After retirement to New Mexico, he has been slowly building up a telescope farm at his site near Apache Point Observatory. He contacted me a while back, asking if I knew of any larger telescope that might be available as a donation to his observatory. I was able to put him in touch with J. Ward Moody (BYU), who had a 22-inch Autoscope telescope in storage. BYU donated this telescope to Tom, and he drove to Provo this summer to pick up the telescope. It tested his pickup's suspension, but he was able to get the parts back home. The optical telescope assembly and mount are of low quality, but the R/C optics are from Paul Jones and are suitable for scientific research. Tom will experiment with the hardware and decide whether it makes sense to refurbish the existing system, canabalize for parts, or just use the optics in a new configuration. The AAVSO may get some time on this telescope as well, but I guarantee that rebuilding this telescope will keep Tom off of the streets for a while!

### **Other Projects**

In the 1990s, the AAVSO was awarded NSF funding to create *Hands-On Astrophysics*, a curriculum that contained educational materials, activities, and investigations, that taught astrophysical concepts and the scientific research process through the use of variable-star observations. It contained an excellent manual and a teacher's guide. HOA was used by many educators and was given out at several teacher workshops.

However, HOA contained several now "dated" items, such as videotapes, floppy disks, and DOS-based software. We continued to market it until our stock was depleted. Rather than re-issue the same material, we have undertaken a massive rewrite to make the material more relevant in today's Internet society. Donna Young (Tufts University) has entered most of the manual into html format, and once that project is finished, it will be released through the AAVSO website. The curriculum is being renamed *Variable Star Astronomy* (VSA) to eliminate that scary "astrophysics" word, but the content level is not changing. The slides have been digitized and the videotape has been placed in mpeg format. The one remaining item is the software, and we have applied for external funding to pay for the porting of the software to a more modern language. We hope to release the full VSA system during FY2009.

At the January 2008 AAS meeting, Joy Nichols (Chandra) gave a neat poster on new variable stars that they were discovering from photometric data available from the Chandra Aspect Camera--a 12-cm telescope that is used to guide the spacecraft. For each pointing, they choose a handful of stars to keep the telescope pointed accurately. Since X-ray observations often take days to perform, the aspect camera gives high precision light curves for the same duration. Joy invited the AAVSO to help in studying these variables. We will give guidance in classification, improving the photometry, and in initiating campaigns on those variables where insufficient data were available for period determination. We will be involving our members and observers in this neat data-mining project.

As part of the Education Committee, a speaker's bureau and a writer's bureau have been started. The speaker's bureau is a list of those people who are willing to give talks on astronomical topics, especially related to variable stars. The writer's bureau is a compendium of those bloggers who have given permission for use of their material in club newsletters and other publications. Mike Simonsen is the primary contact for these new initiatives, and more details are given elsewhere.

At the IAU General Assembly in 2006, we offered to host the IAU unpublished photometry archive at the AAVSO. Towards that end, we have slowly been accreting copies of the 300+ files and scanning those only available on paper. Our summer assistant, David Coit, did most of the scanning. We are still attempting to get all of the files, but it is a bookkeeping exercise, with several sites having some, but not all, of the files. Once the archive is complete, we will create a simple web form for retrieval of the information.

We are also continuing to scan the Olin Eggen observation card archive. Most of the scanning was completed in summer 2007 by David Coit, but he scanned the "easy" cards! What was left were difficult cases, where special attention was needed to complete the scan. Linda Henden has been working on these scans, along with our 2008 summer student, Sungmun Choi. We hope to finish the scanning process in 2009, and then will create a simple web form for retrieval of the scans.

#### Staffing

Arthur Ritchie continues volunteering at Headquarters. He comes in whenever we call for assistance, usually to help in stuffing envelopes, mailing the *Solar Bulletin*, and general sorting. We really appreciate his efforts, and they save considerable staff time.

David Coit, our 2007 Margaret Mayall summer assistant, returned for a few days around Christmastohelpout.Hewashopingtoworkinsummer2008,butfamilymattersintervened. We were lucky enough to have Sungmun Choi (also known as Orion) volunteer to work at Headquarters this past summer. Orion is a visiting Korean high school student interested in astronomy. We gave him several tasks, though I have to admit that most of them were grunge work and not fun! Orion now has an appreciation for the amount of unexciting work that goes on at Headquarters (and does at any scientific institution), but not the exciting work, so we've probably turned him off to science. Next time we will do better!

Richard "Doc" Kinne was hired part-time last year to help Aaron with the computer chores. As Aaron is getting further into his graduate studies, his time is becoming more limited, while our IT requirements keep increasing. Towards that end, we brought Doc on-board as a full-time employee. Along with being a long-time member and observer, Doc also brings enthusiasm and years of administrative experience to the table. We welcome him into the AAVSO family.

Finally, Mike Simonsen was hired as our full-time development director. He can stay in Michigan and still perform the necessary duties. Not only does he perform all of our fund-raising, but he is a whirlwind of activity, calling members (especially new ones!), running the mentor program, developing and running the speaker's bureau and the writer's bureau, and starting the Long Period Variable section. After years of extensive volunteer effort, Mike finally gets to be paid for his contributions!

Other than these changes, headquarters staffing has remained constant. With the new additions, we have twelve full-time employees, along with one part-time employee and two contractors. All permanent employees are described on our website at http://www. aavso.org/aavso/about/staff.shtml.lencourage you to read about these folk who support the members and observers; it is a really nice and efficient staff at HQ!

We held a series of staff meetings regarding the current status and future of the AAVSO during November and December 2007. These meetings helped me understand the

concerns of the staff, as well as coming up with some good ideas as to how to make our membership support better in the future.

### **Publications**

Thomas R. Williams and Michael Saladyga continue work on the AAVSO centenary book. They hope to publish by 2011.

The Chinese and Polish translations of the AAVSO Manual for Visual Observing of Variable Stars were released. JAAVSO Volume 34, number 2, and Volume 35, number 1, were printed. This latter issue was a special edition that covered the AAVSO meeting in Sion, Switzerland, several years earlier. We had promised at that time to publish the proceedings, but many delays occurred, and since several of the papers were not available in any other manner, we felt an obligation to complete this project. Many *eJAAVSO* articles were posted. We posted twenty-six Alert Notices and fifty-five Special Notices. Gamze Menzli edited six EyepieceViews.Three"Variable Star of the Season" articles were published. We contributed sections for the RASC Observer's Handbook. Elizabeth Waagen completed AAVSO Bulletin 71. The AAVSO released the annual eclipsing binary/RR Lyrae stars ephemerides as well as the monthly Solar Bulletin.

There were nineteen non-refereed staff publications (such as *BAAS* abstracts), in addition to the sixteen refereed staff publications (Henden, Price, Templeton, Waagen; *PASP*, *AJ*, *JAAVSO*, etc.). We noted that forty-five papers in journals such as *Astronomy and Astrophysics*, *MNRAS*, *ApJ*, *AJ*, *PASP*, etc. were published using AAVSO data and assistance. The actual number is larger than this, as many posters and papers at AAS meetings use our light curves in their presentations.

Aaron Price received the Chambliss Astronomy Achievement Student Award for a graduate student poster presentation at the 212th meeting of the AAS (2008), for the poster "Polarimetry and the Long Awaited Superoutburst of BZ UMa" (J. Masiero, co-author). Two press releases were also issued.

Charles Whitney has decided to retire as Editor in Chief of the JAAVSO. Chuck has been editor for over thirty-eight years, starting in spring 1975 near the beginning of the Journal. While we sincerely appreciate the many years of service that he has given the AAVSO, we equally wish Chuck all the best in his "retirement." We have been pursuing several options in his replacement.

As part of our policy of continued improvement, we've upgraded the AAVSO Newsletter. It now incorporates *Eyepiece Views, CCD Views*, the *PEP Newsletter*, and observing information, as well as the normal articles, and it will be published quarterly.

We also produced the first AAVSO Annual Report, for FY2007. The Annual Report contains information on the AAVSO and its mission, programs, and activities, Minutes from the

AAVSO meetings, annual Committee and Treasurer's reorts, and the Director's Annual Report (including observer totals). These items are no longer published in *JAAVSO*.

### Travel

FY2008 was another year of travel by staff to worldwide meetings to spread the word about the AAVSO and variable star observing. Linda accompanies me to most of the foreign meetings, with her part of the travel paid for personally. I would also like to mention that most of my foreign travel is subsidized by the hosts of the attended meetings. Sometimes they can contribute towards the plane fares, and often provide housing, meals, and logistical support. This is gratefully appreciated!

I attended the January 2008 AAS meeting in Austin, TX. There, I talked with several AAVSO members who were helping out at the meeting, and was involved in several other discussions about education and the Large Synoptic Survey Telescope (LSST). In late February, I went South to New Zealand and Australia. The New Zealand portion was in collaboration with Dirk Terrell and Jerry Foote to refurbish the Mt. John 24-inch telescope. After this was finished, I went to Australia, touring several major cities on the east and west coasts, giving talks at various society meetings and a workshop at the national amateur conference meeting in Sydney. Amateur astronomy is alive and thriving in Australia; we just need to introduce more of the observers to variable stars!



Attendees gather at the joint AAVSO/ BAA meeting in England

In April, I went to the UK for two meetings. I was invited to speak at the BAA's Winchester Weekend in early April, discussing some new variable stars in an attempt to interest attendees in variable star observing. This was followed by the joint AAVSO/BAA meeting in Cambridge, where Rebecca Turner was the meeting coordinator, and several AAVSO representatives attended (mentioned earlier). Pamela Gay did some live blogging of the meeting--a first for the AAVSO!

In May, I was invited to speak at the Skyscrapers (Rhode Island) monthly meeting. Gerry Dyck and Dave Hurdis were planning

on holding a "star party" the following night, getting members to make variable-star estimates, and my role was to get them excited. It was a fun time, and I got to see a Criterion 6-inch reflector again (this model was my first real telescope with a clock drive). I also attended the Society for Amateur Scientists (SAS)/Big Bear conference to talk to the organizers about the upcoming joint AAVSO/SAS meeting in 2009.

June saw the St. Louis AAS meeting, where I was joined by Mike Simonsen. AAVSO members again helped with meeting coordination, and we were invited to Pamela Gay's home for a party during the meeting. She lives on the Illinois side of St. Louis and has a really nice Victorian house. You have to go visit if you get a chance! I also attended a Giant Telescope conference in Chicago, where the professional community was introduced to

some of the planned future big telescope projects like the Thirty Meter Telescope. Later in the month, I attended the STARS conference in San Louis Obispo, where a group is investigating new technology large aperture telescopes that might be affordable by amateurs and small colleges. Dave Hurdis and I attended a single-day conference regarding non-profit organizations offered by the Massachusetts Atttorney General's office.

Aaron went to the UK in June to meet with Andrew Wilson, the BAA's database manager. We gave Andy a copy of the AAVSO International Database for safe-keeping, and he will be working with Aaron to port their database into our AID in the near future.

Finally, I went to Germany in September 2008. I gave a talk at Tautenburg Observatory regarding our robotic telescope network. Sylvio Klose of Tautenburg and I have a long relationship concerning gamma-ray burst follow-up observations, so it was good to meet with him and his students regarding future collaborations. As mentioned earlier, I then went to Potsdam for the annual BAV meeting, where I gave an invited talk on the AAVSO. I met with the BAV officers and clarified our position on several questions. I think we have a much better working relationship based on that meeting. It was a lot of fun meeting some of the BAV members I have had email conversations with, and to see some of the historical telescopes in the Potsdam area.



Having lunch with BAV members in Germany

### Looking Towards the Future

Coming up over the next fiscal year will be a number of improvements in support of the observers. We will be adding more precision photometry to the comparison star database. The sequence team will start their work in updating the sequences and providing new sequences for newly discovered transients. More campaigns will be announced. The robotic telescope network will be expanded, with both 24-inch telescopes coming on-line. The AAVSO/SAS joint meeting will take place. A new website will be released. 2009 is the International Year of Astronomy, and we will be participating in IYA2009 activities. Hopefully some of our submitted grants will be awarded. All-in-all, I think it will be another great year for the AAVSO!

### Acknowledgements

The AAVSO is not a one-person show, or even a dozen-person show. Everyone who has contributed data, made a monetary donation, volunteered their time and energy, has made this organization the success that it is. We "stand on the shoulders of giants" who came before us and built the foundation of the organization. Clint Ford contributed enormously to the organization, which is why his name bears such prominence everywhere. Previous Directors organized the association and had the vision for its future. The Council guides

the AAVSO, volunteering their efforts to make the organization financially solvent and relevant. Our committee chairs handle specific areas of interest, working with enthusiastic observers and making reports to the membership and Council. Others work quietly behind the scene, acting as scientific advisors to programs, writing important software, or participating in important projects such as the Chart Team. Finally, many institutions and government agencies see our research important enough to provide financial support. Without all of these people, the AAVSO would not exist.

### **Observer Totals**

Our special appreciation and thanks go to our enthusiastic and dedicated observers, who are the heart of the AAVSO and whose ongoing efforts make this association vital to variable star research. Listed on the following pages are the observation totals that we have received at Headquarters.

	No.	No.		No.	No.		No.	No.
Country	Observers	Obs.	Country	Observers	Obs.	Country	Observers	Obs.
Argentina	5	104	Greece	10	8450	Portugal	2	1180
Australia	28	217496	Hungary	64	20656	Republic of Korea	1	51
Austria	2	439	India	1	2	Romania	9	5597
Belgium	34	153033	Ireland	4	102	Russia	9	5242
Bermuda	1	10	Israel	1	3	Slovakia	1	32851
Bolivia	1	242	Italy	32	12815	Slovenia	1	2465
Brazil	15	2811	Japan	2	1164	South Africa	11	120077
Canada	34	39019	Malta	1	44	Spain	27	19791
Chile	3	79929	Mexico	1	89	Sweden	1	1250
China	1	73	Netherlands	87	92287	Switzerland	5	264
Croatia	4	5387	New Zealand	18	261053	Turkey	4	44
Czech Republic	1	59	North Cyprus	1	2553	Ukraine	4	573
Denmark	3	123	Northern Ireland	1	26	Uruguay	2	261
England	32	69411	Norway	7	1165	U.S.A.	285	615295
Finland	4	16205	Peru	1	6			
France	34	49590	Philippines	2	110			
Germany	35	14387	Poland	17	21109	TOTAL	849	1874893

Table 1. AAVSO	Observer	Totals 2007-	-2008 by	Country
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Table 2. AAVSO Observer	Totals 2007–2008 USA b	y State or Territory
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State	C	No.	No. Obs	State		No. Observers	No. Obs	State		No. Observers	No. Obs
Juic		/05017015	005.	State		005017015	005.	Juic		observers	
Alabama	(AL)	1	6	Massachusetts	(MA)	17	19534	Oregon	(OR)	2	10923
Arizona	(AZ)	14	68587	Michigan	(MI)	6	2145	Pennsylvania	(PA)	11	2535
Arkansas	(AR)	1	14	Minnesota	(MN)	10	5776	Puerto Rico	(PR)	1	14
California	(CA)	37	6441	Mississippi	(MS)	1	17	Rhode Island	(RI)	2	1346
Colorado	(CO)	6	28656	Missouri	(MO)	3	15755	South Carolina	(SC)	2	75
Connecticut	(CT)	8	1340	Montana	(MT)	1	2127	Tennessee	(TN)	2	55
Florida	(FL)	8	43589	Nebraska	(NE)	2	165	Texas	(TX)	20	10967
Georgia	(GA)	5	1997	Nevada	(NV)	1	948	Utah	(UT)	1	1143
Hawaii	(HI)	1	27	New Hampshire	(NH)	3	49018	Virginia	(VA)	5	1866
Illinois	(IL)	13	75939	New Jersey	(NJ)	1	45	Washington	(WA)	10	975
Indiana	(IN)	10	7123	New Mexico	(NM)	8	43553	West Virginia	(WV)	2	826
Kansas	(KS)	7	2777	New York	(NY)	10	5883	Wisconsin	(WI)	18	199143
Louisiana	(LA)	4	212	North Carolina	(NC)	4	688				
Maine	(ME)	2	136	Ohio	(OH)	12	560	TOTAL		285	615295
Maryland	(MD)	10	2270	Oklahoma	(OK)	3	99				

				No	1				No
Code	Org.		Name	Obs.	Code	Org.		Name	Obs.
AFO		A.	Abascal, Spain	4	BYF	04	Н.	Betlem, Netherlands	2118
AAP	27	Ρ.	Abbott, Canada	2676	BIB	04	R.	Betz, Belgium	25
AAN	02	Α.	Abe, Germany	97	BIZ		J.	Bialozynski, AZ	48320
AIV	09	Ι.	Abramov, Ukraine	336	BVG	18	G.	Bianciardi, Italy	3
ARV		R.	Adamson, CA	28	BVO	~ ~	V.	Bibe, Argentina	17
SBX		S.	Adrian, Romania	31	BIC	01	L.	Bichon, France	86
ASA	0.4	5.	Aguirre, Mexico	89	BIMIM		IVI.	Biesmans, Belgium	260
	04	IVI.	Albrocht W/	38	BQIVI		۱۷۱.	Bignotti, Italy	1
	12	VV.	Aloncar Caldas Prazil	43/9	DCU DVN	01	C.	Dirza, Romania Risson, Franco	1 417
	15	п. W/	Alexander VA	2	BYT	01	т. Т	Biorkgoord Norwov	417
		۷۷.	All Sky Automated Survey 3 Chile	70023	BYII	00	1.	Bioerklund Denmark	147
ACO	20	C	Allen Sweden	1250	BKI		). I	Blackwell NH	45
AWH	14	w.	Allen New Zealand	7	BLD	10	D	Blane South Africa	107
AIC		L	Almeida, Brazil	80	BW7	10	F.	Blown, New Zealand	29
AJV	15	J.	Alonso, Spain	123	BHO		Т.	Bohlsen, Australia	742
ARC		R.	Altenburg, PA	21	BOI		Β.	Bois, Canada	2
AAA	13	A.	Alves, Brazil	117	BQG		G.	Bokowy, IL	40
AME	27	М.	Amaral, Canada	8	BVS		S.	Bolzoni, Italy	21
AAQ	03	Α.	Ambrus, Hungary	21	BZU		М.	Bonnardeau, France	785
AAX	13	Α.	Amorim, Brazil	1706	BPQ	04	G.	Borst Pauwels, Netherlands	29
AKO		Κ.	Apostolidis, Greece	2	BRJ		J.	Bortle, NY	4206
AJN		J.	Appleyard, Canada	40	BFO	04	S.	Both, Netherlands	378
AWY	13	W.	Araujo, Brazil	190	BXQ		Α.	Botta, Switzerland	6
AAM		Α.	Arminski, Poland	4649	BMU	04	R.	Bouma, Netherlands	1760
ADN		D.	Arnautovic, Australia	16	BDG	20	D.	Boyd, England	18194
ARJ		J.	Arnold, TX	49	BFI		F.	Boyer, OH	1
ATE		Т.	Arranz, Spain	9290	BMK		М.	Bradbury, IN	255
AAU		Α.	Aslanturk, Turkey	2	BXS		S.	Brady, NH	48965
AIO	08	I. T	Aslesen, Norway	21	BDI		D.	Branchett, FL	154
AII	00	Ι.	Asztalos, Hungary	3291	BNW	02	VV.	Braune, Germany	55
	02	D.	Augart, Germany	449	BQC	01	J.	Breard, France	166
AVVB		В.	Awe, WI	40	BZG		G. т	Brellier, France	31
	04	п. Т	Axeisen, Australia Backar Nothorlands	117		02	т. Ц	Brotschneider Cormany	440 620
BIE	04	J. ۵	Baillion Belgium	3/1	BMI	02	M	Browster TY	029
BEX	05	R.	Baker OH	16	BAA	20		British Astronomical Association	England 12750
BWW		W	Bakewell, CA	2	BWU	20	D.	Brooks, MO	25
BBO	04	С.	Bakker, Netherlands	673	BJO	27	J.	Brooks, CA	63
BOZ	03	В.	Balazs, Hungary	70	BXV	15	Х.	Bros, Spain	52
BFU	18	F.	Baldanza, Italy	7	BFF	04	J.	Brosens, Netherlands	9
BM		Μ.	Baldwin, IN	386	BFP	04	G.	Brummelman, Netherlands	98
BCD		R.	Ball, England	25	BOA	01	Α.	Bruno, France	3371
BIV	03	١.	Balogh, Hungary	305	BHU		R.	Buchheim, CA	39
BGZ		G.	Banialis, IL	49	BDH	04	Н.	Bulder, Netherlands	31
BHI		J.	Banister, TX	7	BEP	04	E.	Bus, Netherlands	381
BSF		S.	Barnhart, OH	13	BIW		N.	Butterworth, Australia	19942
BSR	18	S.	Baroni, Italy	185	CCB		C.	Calia, CT	342
BPO		D.	Barrett, France	664	CCZ		C.	Calis, Turkey	5
BQ	20	L.	Bartha, Hungary	1609	CMN		R.	Cameron, Australia	30
BVI		Ι.	Bartlett, IX	312	CMQ	14	Р.	Camilleri, Australia	6
RI	14	F.	Bateson, New Zealand	21154	CPN	27	Р.	Campbell, Canada	42
RRR	27	В.	Battersby, Canada	4	CMP		К. ^	Campbell, FL	1999
BBA		В.	Beaman, IL	995	CQP		A.	Capetilio Bianco, Spain	כ דר
BWV	27	٦. ٨	Beaton Canada	כ ררו∕			ן. ו	Carvajar Iviai (IIIe2, Spain Cason SC	2/
RIS	21	н. Т	Bedient HI	422		01	L. I	Castellani France	203
BCP	20	л. С	Beech England	27 61	CKN	01	ĸ.	Castle A7	27
BEW/	04	C.	Beekman Netherlands	2450	CWO		W/	Castro OH	72
BFB	04	J.	Beerends, Netherlands	376	CTF	27	1.	Catalan, Canada	1023
BZX		G.	Beltran, Bolivia	242	CEC	-/	<u>с</u> .	Ceron, France	3
BTY		Т.	Benner, PA	474	CBI		В.	Chandler, CA	1
BBE	03	Β.	Berente, Hungary	18	CNT		D.	Chantiles, CA	491
BEB	27	R.	Berg, IN	63	CGF		G.	Chaple Jr., MA	4453
BQX		Μ.	Betlej, Poland	21	CFX		F.	Char, Chile	3

Table 3. AAVSO Observers, 2007–2008, cont.	
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				No.					No.
Code	Org.		Name	Obs.	Code	Org.		Name	Obs.
СКЈ		J.	Cheng, PA	12	DPA	05	A.	Diepvens, Belgium	76
CQS		S.	Cheng, China	73	DSV		S.	Diesso, WI	578
CCY		C.	Chiselbrook, GA	718	DTI	04	Τ.	Dijkhuizen, Netherlands	32
CCV		C.	Clarasso, Spain	108	DLA		Α.	Dill, KS	60
CMB		M.	Clark, New Zealand	1	DIL		W.	Dillon, TX	331
CRO	20	R.	Clark, CA	11	DRL	0.2	S.	Dirocco, OH	12
CLK	29	VV.	Clark, MO	14	GDB	03	G.	Domeny, Hungary	14
CPS	05	P. D	Closes Spain	195			⊃. ∧	Donnell, CO	11
CLF	05	г. Н	Coeckelberghs Belgium	3	DKE	04	Т	Dronkers Netherlands	29
ССТ	13	C.	Colesanti, Brazil	65	DUH	04	M.	Drummen, Netherlands	267
CFO		J.	Coliac. France	1740	DPV	• •	P.	Dubovsky, Slovakia	32851
CDK		D.	Collins, NC	669	DMO	01	M.	Dumont, France	1786
COL		P.	Collins, AZ	54	DIU		١.	Durham, NH	8
CME	18	E.	Colombo, Italy	361	DKS		S.	Dvorak, FL	39344
CMG	04	G.	Comello, Netherlands	18975	DGP		G.	Dyck, MA	1771
CLV	18	L.	Comolli, Italy	4717	DDI		D.	Dyer, KS	291
CXA		Α.	Cook, CA	2	EED		E.	Edinho, Brazil	3
CKL		Α.	Cook, OH	106	EMA		Μ.	Eichenberger, Switzerland	23
CK		S.	Cook, TX	2456	EER		E.	Eker, Turkey	16
CWT		W.	Cooney Jr., MI	2	ELE		L.	Elenin, Russia	127
COM	10	T.	Cooper, South Africa	1779	EJI		J.	Elliott, NC	2
CPI	18	Р.	Corelli, Italy	1	EM	0.1	G.	Emerson, NM	7
CDV	0.1	D.	Cornell, WA	141	EPE	01	Р.	Enskonatus, Germany	232
CLZ	01	L.	Corp, France	5/6	EKB	02	к.	Eramia, WA	23
		A.	Costacho Pomania	590 1	EJO	05	J.	Erdelyi CA	242
		1. V	Couleban NV	00			с. К	Ewing El	40
CWD		D.	Cowall MD	1	FTR		T.	Fabian Slovenia	2465
CR		Т.	Cragg, Australia	68	FSU		S.	Fanutti, Canada	6
CFY		J.	Craig, MA	10	FEO	03	E.	Farkas, Hungary	164
CGO		G.	Crawford, Australia	50	FTI		Τ.	Farris, TN	1
CTX	27	Τ.	Crawford, OR	10287	FBH		Β.	Fehling, Spain	2
CMY		Μ.	Crook, England	40	FJH	04	Н.	Feijth, Netherlands	35010
CRR		R.	Crumrine, NY	118	FAJ	03	Α.	Fejes, Hungary	25
CTI	03	Τ.	Csorgei, Hungary	200	FM	04	М.	Fernandes, Germany	197
CSM		Μ.	Csukas, Romania	905	FOM	15	М.	Fernandez Ocana, Spain	70
CKB		В.	Cudnik, IX	1481	FRU		R.	Ferraiuolo, Argentina	4
000		J.	Curto Amigo, Spain	15	FEV	02	E.	Fischier, WA	30
DS		J.	Da Silva, Brazil	24		03	A.	Fodor, Hungary	0
DQA	06	A.	Darriba Martinoz Spain	00 27		03	D. E	Foldosi Hungany	50
DMP	00	А. М	Darriba Martinez, Spain Dasgunta India	57	EMR	05	л. М	Fonovich Croatia	5355
DU	20	L	Davies England	4	FIO		1.	Foster, CA	254
DVE	20	V.	Davis, AL	6	FXJ		J.	Fox. MN	72
DJS	20	J.	Day, England	118	FBN	10	Β.	Fraser, South Africa	11
DGA	04	Н.	De Groot, Netherlands	341	FML		Μ.	Fridlund, Netherlands	4
DGM		Μ.	De Groot, Northern Ireland	26	FAA	18	Α.	Frosina, Italy	1
DJX	27	Μ.	De Jong, Canada	119	FMG		G.	Fugman, NE	145
DNG	04	S.	De Jong, Netherlands	3	GBZ	21	О.	Gabzo, Israel	3
DJ	04	N.	De Jongh, Netherlands	502	GXR		R.	Gagliano, AZ	30
DPP		Ρ.	De Ponthiere, Belgium	11942	GHT	27	G.	Gaherty, Canada	193
SWQ	13	W.	De Souza, Brazil	44	GMO		M.	Gainer, PA	10
DEI	04	E.	Defesche, Netherlands	9	GIN		Ι.	Gandet, AZ	1
	04	J.	Degewey, Netherlands	2	GAA		Р. D	Garey, IL	39
DHK	04	ј. Н	Dellove, Belgiulli Dekker, Netherlands	272	GRI		г. К	Gary Ireland	27
	04	п. П		70	GCP		C	Gerber Germany	27
DFR	27	F.	Dempsey, Canada	22	GHS		с. Н	Gerner, WI	25 4600
DDF		D	Denisenko. Russia	24	GNK	04	H	Geuverink. Netherlands	
DKN	04	J.	Der Kinderen, Netherlands	208	GQR		R.	Gherase, Romania	1
DNO		О.	Deren, Poland	172	GÃO		A.	Giambersio, Italy	3
DPK		Ρ.	Detterline, PA	133	GSA		S.	Giambruno, CA	80
DSI		G.	Di Scala, Australia	40683	GGU	04	G.	Gilein, Netherlands	532
DGI	04	G.	Diepeveen, Netherlands	119	GMY		М.	Glennon, Ireland	18

				No.					No.
Code	Org.		Name	Obs.	Code	Org.		Name	Obs.
GZN	06	A.	Glez-Herrera, Spain	108	JMA		М.	Jacquesson, France	76
GFT		F.	Gobet, France	7249	JTP	01	Ρ.	Jacquet, France	65
GAW		Α.	Godfrey, England	234	JAT	03	Τ.	Jakabfi, Hungary	1
GFB		Β.	Goff, CA	108	JM		R.	James, NM	40589
GPX		W.	Goltz, Australia	27324	JSC		S.	Jamieson, WI	743
GOT	06	Τ.	Gomez, Spain	3568	JZO	03	Ζ.	Jankovics, Hungary	388
GGZ	03	Ζ.	Gorgei, Hungary	382	JDG	0.4	D.	Janky, WA	32
GKA	00	К. Р	Granam, IL Grando Norway	9234	JJG JJG	04	J.	Jansen, Netherlands	11
	10	D. М	Graziani Italy	195		04	G. K	Janssens, Bergium	40
GWI	10	W.	Green VA	-10	IIR	00	R.	leneal (T	129
GBD		B.	Griffiths, New Zealand	1	JDU	04	D.	Jochmans, Belgium	91
GTZ		T.	Grzybowski, NM	615	JOG		G.	Johnson, MD	131
GCO		C.	Gualdoni, Italy	2746	JON	05	К.	Jonckheere, Belgium	2
GUN	01	J.	Gunther, France	704	JA	14	Α.	Jones, New Zealand	10000
GGX	01	G.	Guzman, France	59	JCN	20	C.	Jones, England	246
GYA		L.	Gyarmati, Hungary	11	JJI		J.	Jones, OR	636
HKQ	04	J.	Haak, Netherlands	420	JMV	14	Μ.	Jones, Australia	25799
HCS	03	С.	Hadhazi, Hungary	2650	JRW	10	R.	Jones, South Africa	396
HIY		Ι.	Hager, CI	99	JLN	04	L.	Jongen, Netherlands	115
HKB		В.	Hakes, IL	401	JRC	15	K.	Josa, Spain	2200
		E. W	Hampton CT	243 17			VV.	Julian II, NIVI Kaczmaroch Brazil	2309
HSG		G	Hanson A7	1397	KR		W.	Kaczinalech, brazil Kaminski NM	12
HBB		B.	Harris Fl	42	KAM	02	Δ	Kammerer Germany	25
НМО		М.	Harris, GA	53	КМО	02	M.	Kardasis, Greece	34
HIX	14	E.	Harris-Harries, New Zealand	19969	KAD	03	A.	Karpati, Hungary	144
HAV		R.	Harvan, MD	1303	KKI		Κ.	Kasai, Switzerland	24
HRA		R.	Haugen, NM	3	KEI		E.	Kato, Australia	10
HHU	05	Н.	Hautecler, Belgium	2706	KBJ		R.	Kaufman, Australia	26
HKY	27	Κ.	Hay, Canada	33	KTE		Τ.	Kennedy, CA	1
HDK		D.	Hayden, Canada	3	KSH	14	S.	Kerr, Australia	2255
HAB		R.	Hays Jr., IL	885	KSZ	03	S.	Keszthelyi, Hungary	220
HBD		B.	Heathcote, Australia	1	KRB		R.	King, MN	703
HPC		Р. И	Hecht, Germany	21	KQR	72	K.	Kinne, MA Kinselle, Canada	9
		N. D	Heanbarth Cormany	5 1		27	э. D	Kinsella, Canada Kirby A7	201
HOA		Δ.	Henden MA	7	KRR		г. R	Kirshner CA	1
HGC	14	G.	Herdman, New Zealand	52685	KII	03	L.	Kiss, Australia	528
нно	04	G.	Hermans, Belgium	9	KMM	09	M.	Kititsa. Ukraine	224
HES		С.	Hesseltine, WI	14168	KPC		Ρ.	Klages, England	1
HMV		М.	Hessom, CA	1	KEA	03	R.	Klimaj, Hungary	11
HIM		W.	Hill, MA	7	KGE	08	G.	Klingenberg, Norway	284
HZR	02	R.	Hinzpeter, Germany	375	KPL		Ρ.	Kneipp, LA	145
HJX	13	J.	Hodar Munoz, Brazil	22	KGT		G.	Knight, ME	49
HEK	11	E.	Hoeg, Denmark	76	KSP		S.	Knight, ME	87
HFO	01	G.	Hoffer, Germany	4	KRV		R.	Koff, CO	18371
HDF		D.	Hohman, NY	223	KHL	0.4	M.	Kohl, Switzerland	123
	04	A.	Hollander, CA	5 I 1650	KXU	04	IVI.	Kollenaar, Netherlands	30 2010
	04	G. c	Horophias Notherlands	1050	KWV		ь. М	Komorous Canada	2010
HI7	04	J.	Horne CA	9	KMP		M	Konnelman MN	524
HSW		S.	Howerton, KS	497	KSO		S.	Korotkiy, Russia	47
HJA		J.	Hudson, CA	60	KCY		D.	Korvcansky, CA	79
HOX	14	0.	Hull, New Zealand	43059	KOS	03	A.	Kosa-Kiss, Romania	4537
HDU		D.	Hurdis, RI	603	KLX		L.	Koscianski, MD	76
HUR	20	G.	Hurst, England	2736	KMS		Μ.	Kossa, France	3
HTN		Κ.	Hutton, CA	3104	KAF	03	Α.	Kovacs, Hungary	332
HUZ	27	R.	Huziak, Canada	12550	KVS	03	Α.	Kovacs, Hungary	40
IVI	04	V.	Icke, Netherlands	2	KVI	03	I.	Kovacs, Hungary	484
ILE	03	E.	llies, Hungary	529	KFK		F.	Kratka, I X	114
	12	P.	ingrassia, Argentina		KIVID	02	IVI.	Kriahol Correction	229
IVIA IV/M	16	۱۷۱. ۱۷	Ivanov Russia	3 1616	KIC	02	۷۷. G	Krisch Germany	1003
IPM	10	v. P	lacobs South Africa	17	KTV	16	С. Т	Kryachko Russia	60
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				No.					No.
Code	Org.		Name	Obs.	Code	Org.		Name	Obs.
	5				I	5			
KTZ		Τ.	Krzyt, Poland	648	MPR	23	P.	Maurer, Germany	703
KUC	01	S.	Kuchto, France	806	MGE		G.	Mavrofridis, Greece	4816
LCR	15	C.	Labordena, Spain	472	MAZ		М.	Mazurek, AZ	20
LHS		Н.	Lacombe, Canada	23	MBX		R.	McArthur, GA	12
LSA		S.	Lahtinen, Finland	1	MBE		В.	McCandless, MD	397
LIH	04	J.	Lamerichs, Netherlands	20	MXY		J.	McClusky, TX	674
LDJ	2/	D.	Lane, Canada	2284	MUE		К. т	McDaniel, IX	2676
LIU	02	і. т	Lange, Germany	5/	MDD	27	і. р	McDonagn, MA	50
	12	1.	Langer wen, Nethenands	20	MGH	27	г. Ц	McCoo England	094 220
ITM	15	т.	Laskowski IN	203	MEP	20	п. D	Medicis NY	113
		1.	Laurent, France	2	MED		К.	Medway, England	1910
LZT		T.	Lazuka, IL	1129	MEG	04	J.	Meeus, Belgium	57
LEB	01	R.	Lebert, France	289	MIQ	20	١.	Megson, England	262
LXQ	04	J.	Leer, Netherlands	255	MHI	01	Н.	Menali, MA	106
LMT		Μ.	Legutko, Poland	465	MDJ	12	D.	Mendicini, Argentina	54
LDA		D.	Lehman, MD	8	MQB		N.	Mennekens, Belgium	12
LDI		D.	Lehmann, Germany	6	MBB	14	В.	Menzies, New Zealand	31443
LPD	01	Ρ.	Lemarchand, France	18	MZK		К.	Menzies, MA	9040
LNZ		G.	Lenz, LA	60	MWM		M. T	Merrell, MN	24
		J.	Leonard, IL	15	MIK		1. C	Michalik, VA	14/9
	27	A.	Leveque, CA	167		00	C.	Middleton, South Africa	110557
	04	D. R	Lieveloo Netherlands	185	MXM	00	О. М	Mifsud Malta	509 44
	04	W	Liller Chile	3	MZE	03	7	Miklos Hungary	3
LCI		С.	Limbach, WI	328	MXL	05	R.	Miles, England	7
LAI	27	A.	Ling, Canada	1275	MLL		J.	Miller, MD	3
LMK		M.	Linnolt, NV	948	MZS	03	A.	Mizser, Hungary	802
LLZ	03	L.	Liziczai, Hungary	351	MCE		E.	Mochizuki, Japan	11
LTE		Τ.	Lloyd Evans, England	1068	MRV		R.	Modic, OH	14
LOB	06	J.	Lobo Rodriguez, Spain	539	MHH		J.	Moehlmann, PA	453
LBI		Β.	Logan, AZ	233	MQE		К.	Mogul, GA	556
LRD		D.	Loring, UT	1143	MOD		D.	Mohrbacher, OH	5
LDS	20	D.	Loughney, England	25	MPV	03	P.	Molnar, Hungary	893
LFZ	02	F.	Lucidi, Italy	1671	MOZ	03	Ζ.	Molnar, Romania	36
LBU	17	D.	Lukacs, Hungary	12	MLF	10	L.	Monard, South Africa	4149
	0/	۱۷۱. ۸	Luostannen, Finiano Maas Nothorlands	1083		12	L.	Montalva Paru	5
MDW	04	W	MacDonald II. Canada	5611	MXO	12	C.	Montes Philippines	3
MTX		Т.	MacKenzie, NY	1	MYK		К.	Moore SC	16
MDD		P.	Madden, LA	6	MWN	14	L.	Morand, New Zealand	21513
MBU	04	W.	Maessen, Netherlands	3	MEV	01	E.	Morelle, France	14265
MLI		L.	Maisler, NY	55	MOI	01	E.	Morillon, France	3859
MYN		Α.	Majczyna, Poland	178	MOW		W.	Morrison, Canada	5506
MII	03	L.	Majzik, Hungary	14	MXK	03	Α.	Morvai, Hungary	3
MVU	04	Α.	Mak, Netherlands	1172	MPS		Ρ.	Mozel, Canada	70
MBK	04	J.	Mak, Netherlands	3	MMH		М.	Muciek, Poland	9
MKG		Α.	Manske, WI	2	MUG	04	J.	Mulder, Netherlands	54
MKE		Β.	Manske, WI	554	MDU		D.	Mulinski, Poland	32
MOF		0.	Maraev, Russia	94	MBQ		В.	Mullin, MN	283
MGK	14	G.	Maravellas, Greece	24			171.	Munkacsy, Ri	/43
	14	R.	Marino, New Zealand	297		05	J.	Murlay, On Muylloort Bolgium	11
MER	01	D. F	Mariuzza Italy	27	MGW	05	G.	Myers CT	621
MKW	01	Α.	Markiewicz, Poland	1291	NIS	03	L.	Nagy, Hungary	28
MXS	03	S.	Marosi, Hungary	43	NDO	01	D.	Naillon, France	396
MMN	18	M.	Martignoni, Italy	2	NDD		D.	Nash, CO	5
MYC		C.	Martin, NE	20	NLX	14	P.	Nelson, Australia	19172
MMG		М.	Martinengo, Italy	102	NAL	03	Α.	Nemes, Hungary	331
MRX	02	Н.	Marx, Germany	827	NAR		Α.	Neumann, NC	12
MN		Н.	Mason, CA	12	NJO	02	J.	Neumann, Germany	1257
MQI		Μ.	Matesic, Croatia	3	NMR		М.	Nicholson, England	3906
MTH		H.	Matsuyama, Australia	9700	NFD	04	F.	Nieuwenhout, Netherlands	488
MFE	13	C.	Mattos, Brazil	56	NAW	05	Α.	Nieuwlandt, Belgium	29
MXV		Α.	Matvienko, Russia	9	NWD	04	J.	Niewold, Netherlands	45

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Code	Org.		Name	No. Obs.	Code	Org.		Name	No. Obs.
NCH		C.	Norris, TX	128	RLM		М.	Raymonde, France	2
NKL		Κ.	Nuber, Germany	32	RRD	14	R.	Rea, New Zealand	9
NKB		Κ.	Nugent, NJ	45	RFA		F.	Reichenbacher, AZ	483
NZL	04	Ζ.	Nunninga, Netherlands	435	RZS	03	Ζ.	Reiczigel, Hungary	179
NAN		Α.	Nygaard, England	8	REP	24	Ρ.	Reinhard, Austria	341
OCN		S.	O'Connor, Bermuda	10	RNN		Т.	Renner, WI	15
ODI		D.	O'Driscoll, Australia	6	RKZ		К.	Resende, Brazil	1
ONJ		J.	O'Neill, Ireland	54	RNA	03	N.	Rezsabek, Hungary	50
OSN		S.	Oatney, KS	207	RUZ	04	S.	Rezvani, Netherlands	332
OES		D.	Oesper, WI	15	RJG		J.	Ribeiro, Portugal	590
OYE	17	Y.	Ogmen, North Cyprus	2553	RIX	14	Ι.	Richards, Australia	2655
OAR	1/	A.	Oksanen, Finland	11/38	RRZ	03	K.	Ricza, Hungary	188
OAU	04	A.	Oosternuis, Netherlands	28	KGW		G.	Rinenart, CO	15
OIP	04	۱. د	Orlando NV	200		06	к. т	RIOS, CA Pipara Osoria, Spain	21
		۵. ۵	Ormsby MI	118		00	л. Л	Riphagen Netherlands	2704
OPR		л. Р	Ossowski Poland	10	RIV	04	D. М	Rivera Italy	347
OSV	03	1	Osvald Hungary	25	RAF		Δ	Roberts South Africa	2676
ON 011	00	J.	Ott. CO	964	RCW		С.	Robertson, KS	1331
OCR	05	C.	Otten, Belgium	74	RKO		К.	Robinson, England	7
PQU	04	L.	Paanakker, Netherlands	797	RZD	06	D.	Rodriguez, Spain	24
PLP		L.	Palazzi, Italy	448	RFC		F.	Rodriguez Bergali, Spain	504
PKO		Κ.	Panourakis, Greece	89	RHE	26	Н.	Rodriguez, Uruguay	205
PCC	18	R.	Papini, Italy	1008	RMU	06	М.	Rodriguez Marco, Spain	177
PPS	03	S.	Papp, Hungary	3644	ROE		J.	Roe, MO	15716
PSQ	03	S.	Papp Jr., Hungary	2	RRO		R.	Rogge, Germany	49
PGC		G.	Pappa, Italy	3	ROG		G.	Ross, MI	218
PTQ		Τ.	Parson, MN	3085	RGN		G.	Rossi, Italy	359
PJJ	15	J.	Pastor, Spain	12	RR		R.	Royer, CA	46
PKV		κ.	Paxson, IX	3	RPH		H.	Rumball-Petre, CA	9
	11	A.	Pedrimutter, MA	۲ ۲2			D. т	Ruokonen, WI	15/0
	01	с. С	Pequet Franco	45			т. с	Ryan Iroland	24
	01	C.	Pellerin TY	9J2 61	R7M		М	Rzenka Poland	16/18
PFA		1	Pfannerstill WI	41	SRIC		R R	Sabo MT	2127
PRP		R.	Pickard, Australia	4	SXW		W.	Sabo, IL	66
PXR	20	R.	Pickard, England	4553	SJQ		Α.	Sajtz, Romania	84
PLQ	01	L.	Pinatelle, France	97	SSU		S.	Sakuma, Japan	1153
PGU	18	G.	Pinazzi, Italy	39	SIE		Α.	Salati, Italy	4
PNT	04	R.	Pintjes, Belgium	623	SVI		М.	Sallman, MN	39
PDX		D.	Pitou, CA	876	SQL	26	R.	Salvo, Uruguay	56
PPL		Ρ.	Plante, OH	269	SAH		G.	Samolyk, WI	167843
PDL	03	D.	Plesa, Hungary	18	SQU		J.	Sanchez Lopez, Spain	34
PAW	10	A.	Plummer, Australia	5759	SNN		J.	Sanford, CA	2
	12	К.	Podesta, Argentina	28	SXY	02	A.	Sankowski, Poland	2 407
	10	п. М	Poll South Africa	1/452	STC	05	G.	Santacana PP	40/
	04	101.	Pont Netherlands	233	SSIM		с. с	Santini Italy	14
PMI	04	M	Potter MD	255	SKI	03	к К	Sameczky Hungary	94
PWR		R	Powaski, OH	30	SGE	27	G	Sarty, Canada	6
POX		M.	Poxon, England	388	SSO		R.	Sass, NM	11
PYG		G.	Poyner, England	11084	SVA		A.	Saw, Australia	219
PDO		D.	Pray, MA	169	SDAV		D.	Scanlan, England	233
PCJ		C.	Predom, CT	2	SFI	18	Т.	Scarmato, Italy	14
PAH		Α.	Price, MA	3	SXK	02	М.	Schabacher, Germany	25
POB		R.	Price, England	37	SDY	02	D.	Scharnhorst, Germany	47
PDQ	01	D.	Proust, France	36	SFS		S.	Schiff, VA	348
PUJ	06	F.	Pujol-Clapes, Spain	602	SAJC	04	Α.	Schipper, Netherlands	93
PHG		Н.	Purucker, Germany	522	SJOE		J.	Schlimmer, Germany	1
QW	02	W.	Quester, Germany	12	SPK	01	P.	Schmeer, Germany	18
QFI	05	F.	Questier, Belgium	3	SUF		C.	Schneider, CA	27
QJK DIO	03	J.	Qvam, Norway	22	SICH	04	J.	Schoemaker, Netherlands	24
	27	і. И	nauille, Callaua	2 مدر			A. P	Schoonstone "	
		۲. ۱۸/	Rauscher PA	428 11 <i>1</i>	SEDA		к. Е	Schorr GA	6/
AWA		٧٧.	hauschel, FA	114			г.	Schon, GA	000

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Code	Ora.		Name	Obs.	Code	Ora.		Name	Obs.
	- J.					J			
SYU	02	М.	Schubert, Germany	156	SSW		S.	Swierczynski, Poland	4158
SAND	02	Α.	Schumann, Germany	8	S58		Н.	Swope, CA	103
SHCH	04	Η.	Schut, Netherlands	202	SDX		D.	Sworin, TX	9
SRIH		R.	Schwartz, WA	289	SBT	03	R.	Szabo, Hungary	58
SANI		Α.	Semien, LA	1	SAO	03	Α.	Szauer, Hungary	164
SWEV	04	W.	Sevensma, Netherlands	1	SLY	03	L.	Szegedi, Hungary	541
SDF		D.	Shackleford, CA	191	SILD	03	١.	Szeitz, Hungary	2
SHS		S.	Sharpe, Canada	2580	SYV	03	Ρ.	Szekely, Hungary	20
SDP		D.	Sharples, NY	6	SNO	03	L.	Szentasko, Hungary	1
SSA		Α.	Sharpless, WA	14	SFX	03	Т.	Szentasko, Hungary	3
SFY		J.	Shears, England	10038	TUO		U.	Tagliaferri, Italy	91
SHW		W.	Sherman, TX	154	TMK		М.	Takacs, Hungary	1
SLH		L.	Shotter, PA	763	TDB	27	D.	Taylor, Canada	647
SPAO	18	Ρ.	Siliprandi, Italy	304	TNX	14	N.	Taylor, Australia	48549
SBN	13	Α.	Silva Barros, Brazil	215	TBA		Α.	Tekatch, Canada	9
SGEO		G.	Silvis, MA	201	TPV		P.	Temple, NM	7
SNE		N.	Simmons, WI	2298	IJV		J.	lemprano, Spain	610
SXN		М.	Simonsen, MI	1779	ICI	03	С.	lepliczky, Hungary	3
SJAN	20	J.	Simpson, England	1	IPS	03	I.	lepliczky, Hungary	8/8
SANG		A.	Sing, Philippines	107		04	J.	Ieule, Netherlands	80
SGOR		G.	Sjoberg, MA	346			F.	leyssier, France	1950
SYI	10	E.	Skrzynecki, Poland	5090			1.	lezel, lurkey	21
SJX	10	J.	Smit, South Africa	150			J.	Thibodeau, OK	21
		A.	Smith, England	23		01	A.	Thornburg, NC	5
SDEW	14	D.	Smith New Zeeland	0752		01	D.	Timor Hungany	00
	14	ы. С	Smith, New Zedianu	9/32	TDI	05	A.	Tagani AR	14
SIE		11.	Smith CA	14	TDE		D.	Tomlin II	60200
		J. R	Smith England	220	TVM		N.	Torres Spain	467
SPOT	04	D.	Sooters Netherlands	02	TIX	03	v.	Toth Hungary	140
SKA	16	г. К	Sokolovsky Russia	230	TON	03	ן. ו	Toth Hungary	34
SAON	04	Α	Son Netherlands	46	TMO	03	м.	Toth Hungary	34
SATO	04	Α.	Son, Netherlands	58	TSC	05	S	Tracy, CT	113
SGYO	03	G.	Soponyai, Hungary	47	TVT		V.	Tramazzo, AZ	4
SYP		P.	Soron, Canada	71	TFR		F.	Travaglino, Italy	118
SJZ		J.	Speil, Poland	2252	TWA		W.	Travis, MA	5
SMUS	27	Μ.	Spicer, Canada	1	TRF		C.	Trefzger, Switzerland	88
SPOE	04	Ρ.	Spoek, Netherlands	572	TBX	14	В.	Tregaskis, New Zealand	13931
SC	27	C.	Spratt, Canada	49	TRH	20	R.	Tremblay, Canada	4
SXR	03	Μ.	Sragner, Hungary	16	TDW		D.	Trowbridge, WA	397
SRUD	14	R.	Stabenow, New Zealand	12461	TRX		R.	Truta, Romania	1
SBL	05	Β.	Staels, Belgium	99008	TVS		V.	Tsamis, Greece	5
STY		J.	Stafl, WI	23	TOE		О.	Tuchin, Russia	5
SMAR		М.	Stangalini, Italy	5	TAA		Α.	Turner, CT	2
STR		R.	Stanton, CA	14	TYS		R.	Tyson, NY	772
SDB		D.	Starkey, IN	4772	VFR	01	F.	Vaclic, Czech Republic	59
SALE	09	Α.	Staroverov, Ukraine	1	VST		S.	Valentini, Italy	146
SJAT		J.	Starzomski, Poland	309	VBO	04	P.	Van Baal, Netherlands	6
SYO		١.	Steck, IN	4	BVE	04	E.	Van Ballegoij, Netherlands	1982
SIF		G.	Stefanopoulos, Greece	1321	VDF		F.	Van Den Abbeel, Belgium	4/
SII		Ρ.	Steffey, FL	/42	VDX	04	VV.	Van Den Berg, Netherlands	63
SWIE	04	۷۷.	Sterrelaar, Netherlands	1014	VDV	05	V.	Van Den Bosch, Netherlands	10
SEI	27	C.	Stephan, FL	1214	VDL	05	J.	Van Der Looy, Beigium	1597
	27	IVI.	Stephens, Canada	3		04	IN.	Van Der Mel, Netherlands	201
		n. D	Stewart, IN	ا 210		04	г. с	Van Der Wal, Netrienands	10
		п. М	Stalkidic Crooce	210		04	э. Е	Van Diik Natharlands	03
	20	П. П	Storoy England	/2	VED	04	L. D	Van Everbroock, Bolgium	406
SELL	20 17	D. М	Streamer Australia	4Z //1	VHD	04	r. D	Van Hessche Belgium	400
SRX	14	R	Stubbings Australia	911	VKR	04	B.	Van Kerckhove Belgium	22/
SUK		M	Stuka. CA	48	VNI	05	F.	Van Loo. Belgium	1000
SAC	02	Α	Sturm, Germany	260	VOW	04	Α	Van Oven. Netherlands	222
SUS	02	D.	Suessmann, Germany	481	VRW	04	W	Van Rensbergen, Netherlands	223
SUH	~~	M	Suhovecky, IN	6	VSO	04	J.	Van Soldt, Netherlands	8
SWV		D.	Swann, TX	469	VSU	04	В.	Van Spreng, Netherlands	1266

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Code	Org.		Name	Obs.	Code	Org.	Name	Obs.
VUG		G.	Van Uden, Netherlands	142	WED		G. Wedemayer, WI	1911
VVP	04	Ρ.	Van Vliet, Netherlands	67	WPT	10	D. Wedepohl, South Africa	88
VWS	05	J.	Van Wassenhove, Belgium	43	WEI		D. Weier, WI	29
VMT	05	Τ.	Vanmunster, Belgium	25373	WDZ		D. Wells, TX	1972
VSD	05	D.	Vansteelant, Belgium	5	WKL		K. Wenzel, Germany	414
VKN		Κ.	Vardijan, Croatia	24	WEF		F. West, MD	316
OLV		J.	Vazquez, Spain	1	WJD		J. West, KS	49
VED	01	P.	Vedrenne, France	8262	WRP		R. Wheeler, OK	11
VPA	04	J.	Veerkamp, Netherlands	11047	WAH		A. Whiting, WA	32
VC	14	C.	Venimore, New Zealand	13301	WNA	04	R. Wielinga, Netherlands	2
VET	01	Μ.	Verdenet, France	27	WEY		E. Wiley, KS	342
VWY	04	W.	Verhaegen, Belgium	234	WUG	04	G. Wilkens, Netherlands	195
VPF		Ρ.	Verney, England	1	WI		D. Williams, IN	1302
VCH	04	C.	Veth, Netherlands	33	WIG		G. Williams, OH	11
VIA	01	J.	Vialle, France	389	WPX	14	P. Williams, Australia	3955
VNA		N.	Virnina, Ukraine	12	WRX		R. Williams, MI	6
VJA	17	J.	Virtanen, Finland	3383	WLP	05	P. Wils, Belgium	18
VFB	04	F.	Visser, Netherlands	6	WWJ	20	B. Wilson, England	848
VGK		G.	Vithoulkas, Greece	2058	WBH		R. Wilson, AZ	9
VRM		R.	Vivaldi, Italy	29	WSN		T. Wilson, WV	821
VPZ	03	Ρ.	Vizi, Hungary	306	WAS		A. Winkler, Germany	415
VFK	02	F.	Vohla, Germany	4779	WKM		M. Wiskirken, WA	14
VLO	04	L.	Volders, Belgium	100	WBS		R. Wobus, MD	30
VOL		W.	Vollmann, Austria	98	WJM		J. Wood, CA	5
VKQ	04	J.	Vonk, Netherlands	39	WVR		R. Wood, TX	10
VVE		V.	Vrhovac, Croatia	5	WPF		P. Wright, MN	57
WGD		G.	Waddill, VA	10	WUB	04	E. Wubbena, Netherlands	2638
WLY		L.	Wade, MS	17	WCG		C. Wyatt, Australia	28
WGR		G.	Walker, MA	25	YDS		D. Yi, Republic of Korea	51
WBY		Β.	Walter, TX	57	YKA		K. Young, CA	8
WHN		Н.	Walter, Hungary	14	ZAD		D. Zak, PA	36
WAU		Α.	Wargin, Poland	166	ZPA		P. Zeller, IN	277
WMJ	04	J.	Warmerdam, Netherlands	29	ZRE		R. Zissell, MA	3330
WAB		Β.	Warner, CO	9290	ZWX	04	W. Zweers, Netherlands	1476
WCB		C.	Webster, PA	449				

These codes, which appear in the Table (AAVSO Observers 2007–2008), indicate observers are also affiliated with the groups below:

01 Association Française des Observateurs d'Étoiles Variables (AFOEV)

02 Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)

03 Magyar Csillagàszati Egyesület, Valtózocsillag Szakcsoport (Hungary)

04 Koninklijke Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)

05 Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

06 Madrid Astronomical Association M1 (Spain)

08 Norwegian Astronomical Society, Variable Star Section

09 Ukraine Astronomical Group, Variable Star Section

10 Astronomical Society of Southern Africa, Variable Star Section

11 Astronomisk Selskab (Scandinavia)

12 Liga Ibero-Americana de Astronomia (South America)

13 Brazilian Observational Network REA

14 Royal Astronomical Society of New Zealand, Variable Star Section

15 Agrupacion Astronomica de Sabadell (Spain)

16 Association of Variable Star Observers "Pleione" (Russia)

17 URSA Astronomical Association, Variable Star Section (Finland)

18 Unione Astrofili Italiani (Italy)

20 British Astronomical Association, Variable Star Section

21 Israeli Astronomical Association, Variable Star Section

23 Grupo Astronomico Silos (Spain) 24 Astronomischer Jugendclub (Austria)

26 Red de Observadores (Montevideo, Uruguay)

27 Royal Astronomical Society of Canada

29 Asociacion Amigos de la Astronomia (Argentina)

Observations (increments of 1000)	No. Observations per increment	% of All Observations	No. Observers per increment	
1–999	100385	5	697	
1000–1999	63964	3	43	
2000–2999	62767	3	25	
3000-3999	38496	2	11	
4000-4999	63414	3	14	
5000-5999	27321	1	5	
6000–6999	0	0	0	
7000–7999	15172	1	2	
8000-8999	8262	0.4	1	
9000–9999	66117	4	7	
10000+	1428995	76	44	

### Table 4. Observation statistics for fiscal year 2007–2008.