# The Treasurer's Report

| Item | 1990 | 1991 |
|---|---|---|
| **Total Income** — in SFR | **781.320** | **821.620** |
| **Total Expenditure** | **815.000** | **761.500** |
| **Deficit (surplus)** | **33.680** | **(60.120)** |
| Accumulated Deficit | 206.340 | 92.920 |

The Treasurer's report to the General Meeting last September in Amsterdam explained how staff reductions during 1990, and the transfer of more of the activities to the Budapest Secretariat from Geneva starting this month, would result in estimated **surpluses** of 20 kSFR in 1990 and 60 kSFR in 1991. The measures that achieved the substantial improvements over forecasts presented at the Council meeting last Spring in Uppsala showing deficits of 34 and 100 kSFR in 1990 and 1991 respectively are short-term: the Secretariats cannot continue current activities at 1990 staff levels, and Gero Thomas cannot be expected to remain in Budapest for more than two years. Both points have been been emphasized by the President in a letter that was sent to IOM's last month.

### The 1991 Budget

Council accepted the deficit of 34 kSFR for 1990 but required a balanced budget for 1991 with essentially no change to the recently expanded *Europhysics News*. Given these boundary conditions, it has been the responsibility of a Task Force appointed at the Uppsala Council meeting and reporting to the Executive Committee to come up with concrete proposals for redressing the Society's short-term finances. The Task Force comprising the Treasurer, Ph. Choquard, the Executive Secretary and W.J. Merz analyzed the situation and made the necessary recommendations. One of the results is the budget statement for 1991, detailed in the Table, which was sent with the letter to IOM's.

Some remarks are in order. When compared with the original budget for 1990 that was accepted by Council one notes some encouraging features:
— IOM membership fees in convertible currencies have increased by 12% (from 481 to 541 kSFR) owing to a healthy increase in the number of individual members and to a new fee scale for the large British and German societies which takes effect this year;
— Associate Member fees (175 kSFR) are stable even in these difficult times;
— subscriptions and advertising income for *Europhysics News* have increased by 30.6% (from 72 to 94 kSFR).

On the expenditure side:
— the transfer of more of the Society's administration to Budapest will yield a very substantial reduction in salaries, including social charges (from 390 to 265 kSFR);
— the move to Budapest will only increase operating expenses by a few percent (from 145 to 148 kSFR) and corresponds to the organizational arrangements agreed to by the Executive Committee, in consultation with the staff and the Task Force, which were summarized in last month's *Europhysics News*;
— increases in the numbers of pages and subscribers means that the printing and distribution costs of *Europhysics News* will increase significantly (from 103 kSFR to 159 kSFR);
— an increase in travel costs to allow G. Thomas, the Executive Secretary, to return home regularly and for other staff transfers between the two Secretariats.

Overall, the 1991 budget satisfies the need for **balanced finances** with a substantial reduction in the accumulated deficit from 173 kSFR at the end of 1989 to about 100 kSFR by the end of 1991 (the deficit has been covered by surpluses involving the activities of the Divisions and has not required bank borrowings). It implies, however, a heavy personal cost to G. Thomas which must not continue so it is necessary to look beyond next year.

### Long-Term Situation

Historically, the Society's finances have stayed chronically in the red with only a few years showing surpluses. The last especially difficult period occurred around 1983, when the idea of shifting activities to Budapest was first suggested. It was not carried through in full owing to the prevailing political situation. In the background there has always been the problem of non-convertible income — mostly comprising some or all of the membership fees from east European countries. If it had been possible to convert these funds at the prevailing exchange rates the Society would in fact now be showing a surplus of 100 kSFR. These monies have of course been used wherever possible to finance activities, but on balance the Society would have preferred to convert them. Broadly speaking one can say that the current deficit notwithstanding, EPS activities have accurately matched the Society's resources, an important consideration if members expect services in exchange for payment.

The deficit is nonetheless very real and the Treasurer is also aware that the long-term financial situation must be stabilised so that Gero Thomas can return as soon as possible. An inventory of potential sources of income and cost savings has been made and the findings are:

**Table — EPS income and expenditure (in SFR) budgeted for 1990 (as accepted by Council in March 1990) and for 1991 (as accepted by the Executive Committee in December 1990).**

| **INCOME** | 1990 Budget accepted by Council | 1991 Estimated |
|---|---|---|
| | SFR | SFR |
| Membership fees | | |
| Art. 4a) at 144.- | 11.520 | 18.720 |
| Art. 4c) at 48.- | 144.000 | 158.400 |
| Art. 4c) non-convertible | 17.280 | 17.280 |
| Art. 4d) at 60.- | 8.800 | 11.700 |
| Art. 4b) | 268.000 | 304.000 |
| Art. 4b) non-convertible | 31.200 | 31.200 |
| Associate Members | 172.000 | 175.000 |
| Gifts and Donations | 10.000 | — |
| **sub-total** | **(662.800)** | **(716.300)** |
| *Europhysics News* | | |
| Bulk subscriptions | 37.400 | 41.800 |
| Library subscriptions | 9.000 | 12.000 |
| Advertisements | 25.600 | 40.000 |
| Gifts and Donations | 45.000 | — |
| **sub-total** | **(117.000)** | **(93.000)** |
| Other | | |
| *Europhysics Conference Abstracts* | 35.000 | 35.000 |
| Various sales | 15.000 | 15.000 |
| *Europhysics Letters* | — | 10.000 |
| **sub-total** | **(50.000)** | **(60.000)** |
| **Total Income** | **829.800** | **870.100** |
| Less attribution of non-convertible income to special provision account | 48.480 | 48.480 |
| **Total Income in convertible currency** | **781.320** | **821.620** |

| **EXPENDITURE** | 1990 Budget accepted by Council | 1991 Estimated |
|---|---|---|
| | SFR | SFR |
| Salaries | | |
| Permanent staff (incl. social charges) | 380.000 | 250.000 |
| Auxiliary staff | 10.000 | 15.000 |
| **sub-total** | **(390.000)** | **(265.000)** |
| *Europhysics News* | | |
| Editorial | 137.000 | 135.000 |
| Printing | 94.000 | 135.000 |
| Distribution | 9.000 | 24.000 |
| **sub-total** | **(240.000)** | **(294.000)** |
| Secretariat | | |
| Office rent | 35.000 | 37.500 |
| Telephone, mailing, stationery, *etc.* | 48.000 | 45.000 |
| Duplication | 13.000 | 12.000 |
| General administration | 15.000 | 14.000 |
| Equipment maintenance, purchase | 5.000 | 14.000 |
| Promotion | 10.000 | 5.000 |
| Divisions | 6.000 | 6.000 |
| EPS Poster | 3.000 | 4.000 |
| Production *Europhys. Conf. Abs.* | 10.000 | 10.000 |
| **sub-total** | **(145.000)** | **(147.500)** |
| Meetings, travel | | |
| Travel | 20.000 | 35.000 |
| Meetings: Council, *etc.* | 15.000 | 15.000 |
| Meeting: Associate Members | 5.000 | 5.000 |
| **sub-total** | **(40.000)** | **(55.000)** |
| **Total Expenditure** | **815.000** | **761.500** |

— *Europhysics News*: reduction in the production costs by supplying material in electronic form to the printer and increased advertising income should net 25 kSFR each year;

— Members: a continuing steady increase in the number of IOM's (100 per year equivalent to 5 kSFR seems reasonable);

— Associate Members: encouraging existing members to increase their support and finding new Associates should yield an additional income of 20 kSFR. The Treasurer notes that the response to initiatives by a few individuals has met with an excellent initial response. Five organizations have recently agreed to become Associates and four others will raise their contributions (giving a total of about 20 kSFR).

**Scenarios**

All in all, an additional 70 kSFR of income above the current level seems achievable. But is it enough? Unfortunately not. One problem is inflation that appears to be peaking at 6.5% in Switzerland where most of the Society's expenses are incurred. G. Thomas has made a detailed analysis of various scenarios for the evolution of the Society's finances. It shows that in order for him to stay just two years in Budapest (until the beginning of 1993), and assuming an inflation rate of 5%, then the deficit will only be reduced to zero if income is increased by about 150 kSFR from today's amount. So this is clearly the long-term requirement: we have to raise an additional 80 kSFR, above the 70 kSFR that can be expected, to ensure that Gero Thomas returns to Geneva and we have a no deficit in 1993 **and beyond.**

Sources of this additional income are limited. One is clearly us Members as it is essentially we who must meet the Society's responsibilities. The Treasurer aims to submit two proposals to Council in March and Members had until 6 January to comment. The first calls for an increase in the unit fee from 12 to 13.5 SFR on 1 January 1992 corresponding to an annual increase of just under 4.5% since the last revision that came into effect in 1989. If agreed it would raise income by 60 kSFR, thus meeting 75% of the requirement. The second is indexation of the unit fee to the Swiss rate of inflation: its implementation would raise about 15 kSFR in 1993.

The overall result of the two proposals still leaves us a little short of the target of the equivalent in 1991 of 80 kSFR in new income. Considerable progress in tackling the problem has been achieved and a concerted effort is underway to further expand fund raising initiatives involving donations and the Associates. The President is also studying the problem of non-convertible currency with a view to making some concrete proposals. IOM's, the Divisions and the national societies are meanwhile being urged to carry out membership campaigns as a matter of urgency to ensure the sound financing that will allow the Society's activities to continue to be improved.

# The Dynamic Sun

Somewhat appropriately, the sixth triennial meeting in Debrecen, Hungary last May of the Solar Physics Section of EPS just about corresponded with a maximum in a cycle of solar activity. It was also the first time the conference was held in an east European country, where flawless organization by the local organizers (L. Dezsö and coworkers) in the face of a more difficult economic situation than on previous occasions was greatly admired and appreciated. Equally remarkable was the appearance by October of the proceedings as a Publication (Vol. 7) of the Debrecen Heliophysical Observatory, Hungary.

The label "The Dynamic Sun" was chosen to cater for a large fraction of the solar community and its broad range of interests covering the structure and dynamics of the solar atmosphere. Selected aspects such as the solar wind and processes in the Sun's interior were excluded as they had been adequately dealt with at recent meetings.

**Large-scale motions from the interior**

Motions on scales exceeding the supergranules, the largest structures of the quiet photosphere, were reviewed by H. Wöhl (Kiepenheuer-Institut) and I. Tuominen (Helsinki). It has become clear that solar activity is connected with anomalies of solar rotation rather than with homogeneous differential rotation. Evidence in favour of an almost rigid rotation of the strongest magnetic fields and of complexes of activity was presented. The weak, large-scale background, however, rotates with rates depending on the latitude. Its newly found vorticity patterns also received attention.

**Release of magnetic energy leads to particle acceleration**

The release of magnetic energy is connected to particle acceleration and, in turn, to intense emissions (flares) at all wavelengths. G. Trottet (Meudon Observatory) and L. Vlahos (Thessaloniki) reviewed the observations of flare-initiated emissions. They can now be divided into five phases of energy build-up, release and transformation. A most relevant recent discovery, based largely on radio observations, is that the main energy release seems to be composed of thousands of *microflares* (Fig. 1). Theoretical modelling assumes a global instability breaking up into fast local explosions: particles can then be easily accelerated by interactions with the multitude of resulting shock waves.

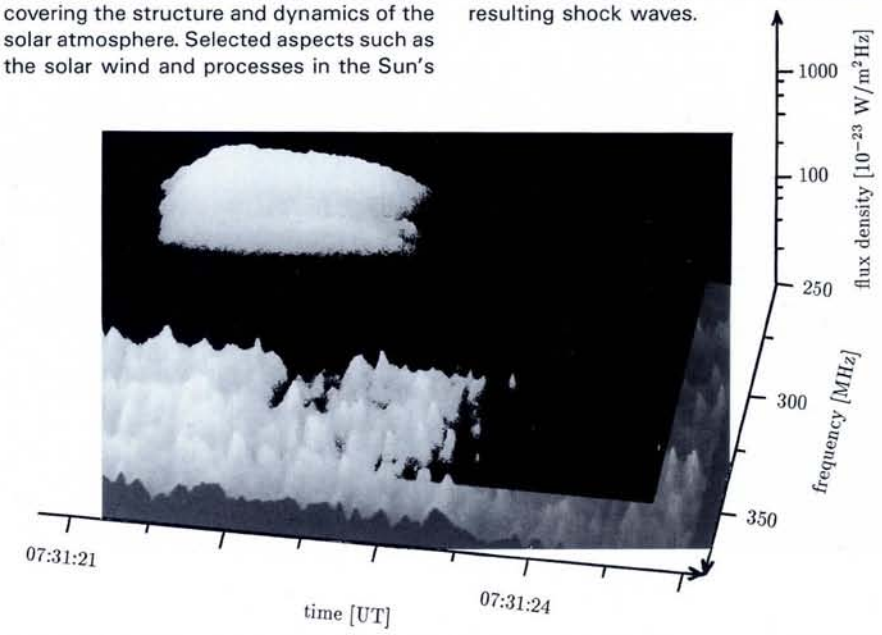


*Fig. 1 — Fragmentation of a solar flare on the finest scale as shown by a radio spectrum made at the ETH Zürich (Benz, 1990). The flux density is plotted in three dimensions as a function of time and the frequency, where the observing frequency represents the plasma frequency in the source and is proportional to the square root of the particle density. The spikes of flux in the lower part of the spectrogram, which originate at the sites of energy release in the regions of high density at low altitudes, suggest that the release is extremely fragmented. The more gentle release shown in the upper part is for emission from the low density region at altitudes which are some 50000 km higher: it is the signature of an escaping beam of energetic electrons traversing the corona.*

However, the predominant shock that is observed in radio emissions and white light to propagate into interplanetary space after large flares is not connected to either the acceleration of flare electrons (seen in the hard X-ray bremsstrahlung) or flare ions (seen in $\gamma$-ray nuclear de-excitation lines).

**MHD and solar activity**

One of the outstanding problems of solar physics is that of coronal heating. A new line of thinking was reviewed by C. Chiuderi (Firenze). Its basic idea is that random motions in or below the photosphere induce stresses in the magnetic fields so that currents start flowing in the corona. The currents dissipate energy through various mechanisms, thereby generating local heat.