



# UNIVERSITY OF BERGEN

Department of Physics and Technology  
Space Physics Group

## Satellite projects

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### General:

Staff and students at Space Physics Group, have contributed in the 11 listed satellite projects as follow:

- Scientific and Technical Definitions of Concepts (STDC).
- Development of instrumentation for flight – prototype and engineering model hardware(HW).
- Ground based Support and Bench Checkout Equipment (GSE and BCE).
- Design, building, assembly and test of electrical Flight Modules (FM) and Flight Spare (FS).
- Development of Flight Software (FSW) and software for verification and testing (SW).

### Projects:

The Space Physics Group's scientists, post doc's, doc. students and master students have participated in all together 11 satellite project and put a significant contribution to the science, data handling and analysis and in these projects.

| <i>Satellite project -- UB Instrument<br/>Participants</i>   | <i>Launch site<br/>and date</i>  | <i>UB scientists in the project<br/>UB technical staff and key persons in the project</i>  |
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| <b>ESRO IA</b> (ESA)<br>Instrument: <i>S71-C</i> - particle detector<br><br>UB,DRI   | Vandenberg AFB,<br>California, USA<br>Okt.3 - 1968   | Co-I.: Finn Søråas, Kjell Aarsnes.<br><br>Technical responsibility: STDC, FM, MF, GSE and BCE.<br>Terje Ryngøy, Hans Torgilsteit, Asbjørn Dale.  |
| <b>ESRO IB</b> (ESA)<br>Instrument: <i>S71-C</i> - particle detector<br><br>UB,DRI   | Vandenberg AFB,<br>California, USA<br>Okt.1 - 1969   | Co-I.: Finn Søråas, Kjell Aarsnes.<br><br>Technical responsibility: STDC, FM, MF, GSE and BCE.<br>Terje Ryngøy, Hans Torgilsteit, Asbjørn Dale.  |
| <b>VIKING</b> (ESA)<br>Instrument: <i>MICS</i> - time of flight detector<br><br>MPAe, UB, AE, RAL, UoM, LANL, SISP.                                      | Kourou - French.Guiana<br>Feb.22 - 1985  | Co-I.: Finn Søråas, Kjell Brønstad, Kjell Aarsnes.<br><br>Technical responsibility: STDC, FM, GSE, BCE and SW.<br>Svein Njaastad, Arne O.Solberg, Margaret Alme,<br>Arne Auen Grimnes. |
| <b>CRRES</b> (NASA)<br>Instrument: <i>MICS</i> - time of flight detector<br>Instrument: <i>EPAS</i> , - particle detector<br><br>MPAe, UB, AE, RAL, LANL | Cape Kennedy,<br>Florida, USA<br>July 25 - 1991  | Co-I.: Finn Søråas, Stein Ullaland, Kjell Brønstad.<br><br>Technical responsibility: FM, BCE.<br>Svein Njaastad, Arne O.Solberg, Harald Hanssen.                                       |
| <b>GEOTAIL</b> (NASA)<br>Instrument: <i>HEP-LD</i> - time of flight detector<br><br>MPAe, UB.  | Cape Kennedy,<br>Florida, USA<br>July 24 - 1992  | Co-I.: Finn Søråas, Stein Ullaland.<br><br>Technical responsibility: FM ASIC // BCE.<br>Lars Erslund; Åsmund Sandvand //Arne O.Solberg.  |
| <b>NOAA-13</b> (TIROS-I) (NASA)<br>Instrument: <i>MAXIE</i> - Motion controll system<br><br>LPARL, UB, AE.   | Vandenberg AFB,<br>California, USA<br>Aug. 9 - 1995<br>MAXIE performed OK.<br>S/C power failed after 12 days | Co-I.: Kjell Brønstad, Johan Stadsnes.<br><br>Technical responsibility: STDC, FM, FSW, BCE and SW.<br>Arne O. Solberg, Svein Njaastad, Kåre Njøten,<br>Asgeir Myskja.                  |
| <b>POLAR</b> (NASA)<br>Instrument: <i>PIXIE</i> – pinhole X-ray camera<br><br>LPARL, UB, AE, UoM, LANL.  | Vandenberg AFB,<br>Florida, USA<br>Feb. 24 - 1996  | Co-I.: Johan Stadsnes, Jon Bjordal.<br><br>Technical responsibility: STDC, FM, MF.<br>Kåre Njøten, Kåre Slettebakken.  |



| <b>Satellite project -- UB Instrument Participants</b>   | <b>Launch site and date</b>  | <b>UB scientists in the project<br/>Technical staff and key persons in the project</b>   |
|--|--|--|
| <b>CLUSTER</b> (ESA)<br>Instrument: <b>RAPID</b> - time of flight detector<br>MPAe, UB, AE, RAL, LANL, GSFC,<br>U.OULU, SISP, UoB. | Kourou - French.Guiana<br>June 4 - 1996<br>No success  | Co-I.: Finn Søråas, Stein Ullaland, Kjell Aarsnes.<br>Technical responsibility.: STDC, FM ASIC // IES BCE.<br>Lars Erslund, Åsmund Sandvand, // Asgeir Myskja,<br>Lars Søråas, Svein Njaastad.                         |
| <b>CLUSTER II</b> (ESA)<br>Instrument: <b>RAPID</b> - time of flight detector<br>MPAe, UB, AE, RAL, LANL, GSFC,<br>U.OULU, SISP.   | Kourou - French.Guiana<br>1.pair launched:<br>July 16 - 2000<br>2. pair launched:<br>Aug. 9 - 2000 | Co-I.: Finn Søråas, Kjell Aarsnes.<br>Technical responsibility: STDC, FM ASIC // IES BCE.<br>Lars Erslund, Åsmund Sandvand, // Asgeir Myskja,<br>Lars Søråas, Svein Njaastad.  |
| <b>INTEGRAL</b> (ESA)<br>Instrument: <b>IBIS</b> - VETO, VME on VDM.<br>UB, LABEN, PAS/SRC.  | Baikonor - Kazakstan<br>Oct. 17 - 2002   | Co-I.: Kjell Brønstad, Johan Stadsnes,<br>Olav Kjellseth-Moe(Univ.of Oslo).<br>Technical responsibility: STDC, FM.<br>Arne O.Solberg, Svein Njaastad.  |
| <b>CHANDRYAAN-1</b> (ISRO/ESA)<br>Instrument: <b>SIR-2</b> – Spectrometer InfraRed<br>MPS,UB,PAS/SRC                               | Shriharikota - India<br>Oct.22 - 2008  | Co-I.: Kjell Brønstad, Kjetil Ullaland (STDC).<br>Technical responsibility:<br>Instrument firmware and FSW:<br>OlavThorheim, Yngve Skogseide<br>FM and FS -HW: Arne O.Solberg, Viviana Reimundo,<br>Bjørn Pommeresche. |

**Contact persons for the different project :**

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|   |                |
|---|----------------|
| <i>The Aerospace Corporation, Los Angeles, USA</i>                    | <i>AE</i>      |
| <i>Dansk romforsknings institutt, Denmark</i>                         | <i>DRI</i>     |
| <i>Goddard Space Flight Center, USA</i>                               | <i>GSFC</i>    |
| <i>LABEN, Milano, Italy</i>   | <i>LABEN</i>   |
| <i>Los Alamos National Laboratory, USA</i>                            | <i>LANL</i>    |
| <i>Lockheed Palo Alto Research Laboratory, USA</i>                    | <i>LPARL</i>   |
| <i>University of Maryland, USA</i>                                    | <i>UoM</i>     |
| <i>Max-Planck-Institut für Aeronomie, Lindau, Germany</i>             | <i>MPAe</i>    |
| <i>Max-Planck-Institut für Sonnensystemforschung, Lindau, Germany</i> | <i>MPS</i>     |
| <i>Polish Academy of Sciences, Space Research Center, Poland</i>      | <i>PAS/SRC</i> |
| <i>Rutherford Appelton Laboratory, England</i>                        | <i>RAL</i>     |
| <i>Swedish Institut for Space Physics, Kiruna, Sweden</i>             | <i>SISP</i>    |
| <i>University of Oulu, Finland</i>                                    | <i>U.OULU</i>  |
| <i>University of Bergen, Dept. of Physics and Technology, Norway</i>  | <i>UB</i>      |
| <i>University of Boston, USA</i>                                      | <i>UoB</i>     |