

LIST OF FINISHED R&D PROJECTS since 1988

CLASSIFICATION:

- AQUACULTURE, AGRICULTURE AND FOOD INDUSTRY
- BIOTECHNOLOGY / BIO-MEDICINE / BIOCHEMISTRY
- CIVIL ENGINEERING
- ENERGY SAVING AND ENVIRONMENTAL TECHNOLOGY
- INFORMATION / TELECOMMUNICATION TECHNOLOGIES / ROBOTICS
- MATERIAL SCIENCE AND TECHNOLOGY / MARINE TECHNOLOGY
- OIL AND GAS INDUSTRY, OFFSHORE TECHNOLOGY
- SPACE TECHNOLOGY
- MISCELLANEOUS

AQUACULTURE, AGRICULTURE AND FOOD INDUSTRY

- Developing system Biofish – Sea Bass, Sea Bream in Mediterranean (Project A and B)
Oppdrett Service AS, Norway (Geirulv)
Scorsa, France (van Obbergen and Guy Lebrun)
Duration 1989 - 1991
- Study of Inter-relations Carotenoides-Vitamines A at salmon
Akvaforsk, Sunndalsøra, Norway (Storebakken)
INRA, Ascaïn, France (Coubert)
Duration 1989 - 1990
- Air transportation – Norwegian Aquaculture – by ATR 72
Air West A/S, Norway (Wågsæther)
Avions de Transport Régional (ATR), France (Valerio)
Duration 1990 - 1991
- Turbot grower feed. Protein requirement Feed production technology
Norsk Bioakva A/S, Norway (Einar Wathne)
UCAAB, France (Antoine Bon)
Duration 1994 - 1997
- Scallop production – plan for co-operation
Centre for Studies of Environment and Resources, UiB, Norway (Thorolf Magnesen)
IFREMER-Brest-Drv, France (Jean-Claude Dao)
Duration 1994 - 1997
- Control and management of quality with nutrition and feeding regime
Domstein Salmon AS, Norway (Ola Sveen)
Labeyrie SA, France (Laurent de Baynast)
Duration 1995 - 1997

- Biactive compounds in fish and shellfish waste
Institute for Fisheries and Aquaculture, Norway (Asbjørn Gildberg)
Collège de France, Marine Biology Laboratory, France (Yves Le Gal)
Duration 1995 - 1997
- Cellular immune system in salmoned fish
University of Bergen, Fisheries and Marine Biology, Bergen, Norway (Curt Endresen)
Université Pierre et Marie Curie, CNRS and INRA, Paris, France (Jacques Charlemagne)
Duration 1996 - 1998
- Oral use of *Propionibacterium acnes* to improve health and growth in fish
Nutreco ARC, Norway, (Alex Obach)
Vétoquinol S.A., France (A. Rigoulot)
Duration 1998 - 1999
- Alternative to antibiotic treatments in marine aquaculture. Application to bivalve larvae
Centre for studies of environment and resources, UiB / Scalpro AS, Norway (T. Magnesen)
UBO-IEUM-UMR CNRS, France (Christine Paillard)
Duration 1999 - 2000
- New quality assessment methods for the Norwegian salmon industry
SINTEF Fiskeri og havbruk and Norway Royal Salmon, Trondheim, Norway (Marit Aursand)
Eurofins Laboratories and Laiem, Nantes, France (Michèle Lees)
Duration: 1998-2001
- Substitution of fish meal by plant protein in diet of Atlantic Salmon and Rainbow Trout
EWOS Innovation AS (NorAqua Innovation AS), Dirdal, Norway (Jan Vidar Jakobsen)
UNCAA DPA UCAAB, Chateau-Thierry, France (Christine Azam)
Duration: 1999 – 2002
- High-energy diets in aquaculture: Effects on salmonid quality
Nutreco ARC AS, Stavanger, Norway (Wolfgang Koppe)
National Institute for Agronomic Research (INRA), France (Geneviève Corraze)
Duration: 2000 - 2003
- Structure, formation and daily growth of the scallop *Pecten maximus* shell
Institute of Marine Research, Bergen (Øivind Strand)
Institut Universitaire Européen de la Mer (Laurent Chauvaud)
Duration: 2001-2003
- Adaptation of French sea bream technology for cod fingerling production
Bergen Aqua AS, Bergen (Grethe Adoff)
Ferme Marine de Douhet (Frédéric Cachelou)
Duration 2001 - 2003
- Nutraceuticals from fish and shellfish hydrolysates
BioHenk AS, Tromsø (Even Stenberg)
Station de Biologie Marine du Muséum National d'Histoire Naturelle (Yves Le Gal)
Duration: 2002 - 2004

BIOTECHNOLOGY / BIO-MEDICINE / BIOCHEMISTRY

- Development of 99-Tc-labelled drugs based upon Biological Substances
Axix Research A/S, Oslo, Norway (Heggli)
Compagnie ORIS Industrie, Gif-sur-Yvette, France (J.C. Saccavini)
Duration 1989 – 1990
- Purification of marine oils by supercritical fluid fractionation
Pronova Biocare, Norway (H. Breivik)
Separex, France (M. Perrut)
Duration 1991 - 1993
- Modelling of molecular recognition – a semi automatic approach
MR Center, Norway (Steffen Petersen)
Biostructure, France (Stéphane Boudon)
Duration 1992 – 1993
- Detection and counting of residual leukocytes
Dynal, Norway (Erik Ruud)
Biocytex, France (Philippe Poncelet)
Duration 1993 - 1994
- Repair of lesions induced in DNA by industrial compounds and drugs
University of Bergen Department of molecular Biology, Bergen, Norway (Niels Aarsæther)
Institut Gustave Roussy, Villejuif, France (Jacques Laval)
Duration: 1998-2001
- The immune system in scallop, Doctoral studies at SARS Centre in Bergen
Doctoral student Armaury Herpin, Laboratoire de Biologie et Biotechnologies Marine, Caen
Duration: 2000-2002
- Development of biochemical procedures and read out platforms for manipulating and analysing nucleic acids
LingVita, Norway (Preben Lexow)
Pasteur Institut, France (Aaron Bensimon)
Duration: 2001-2003
- The Effect of Bioactive Fatty Acids on Atherosclerosis and Restenosis Development
Thia Medica AS / Clinical Biochemistry Haukeland Hospital, UiB, Norway (Rolf K. Berge)
Institut Pasteur de Lille, France (Bart Staels)
Duration: 2002 – 2004
- Developing genetic tools for real time non-invasive imaging of tumorigenesis in living mice
Cgene AS (Harald Karlsen) / University of Oslo (Joel Glover)
ENS Paris / IPSOGEN (Christo Goridis / Fabienne Hermitte)
Duration: 2 years 2005 - 2007

CIVIL ENGINEERING

- Prediction creep settlements for foundations in permafrost
Norwegian Geotechnical Institute, Oslo, Norway (Tom Lunne)
GEOCEAN, Marseille, France (Alain Puech)
Duration 1991

- Submarine Slides
Norwegian Geotechnical Institute, Oslo, Norway (Harald Norem)
CEMAGREF, Division Nivologie, St. Martin D'Herès, France (Gerard Brugnot)
Duration 1991 - 1992
- Geosynthetics for innovative sustainable solutions in Arctic climate
Store Norske Spitsbergen Grubekompan / SINTEF (Arnstein Watn)
TenCate Geosynthetics France (Philippe Delmas)
Duration: 3 years 2006 – 2009 (Σ! 3702)

ENERGY SAVING AND ENVIRONMENTAL TECHNOLOGY

- Technology transfer in water technology
Aquateam, Norway (Schanke Eikum)
Verseau, France (Lagarrique)
Duration 1990 – 1991
- Integration of a gas turbine in a high speed vessel
Ulstein International AS, Norway (Harald Nordal)
Turbomeca, France (Watier)
Duration 1991 - 1992
- Anode gas cleaning. Installation and operation of a Pilot Plant
Elkem Aluminium ANS, Norway (Arne G. Berg)
Procedair SA, France (Serge Commenges)
Duration 1997
- Wet Air Oxidation by Catalytic Membrane Contactor
SINTEF Material Technology / Due Miljø, Norway (Henrik Ræder)
Institut de Recherches sur la Catalyse (IRC)-CNRS, France (P. Gallezot)
Duration 1998 – 2000
- Current forecasting in the North Sea and the Gulf of Lion
Terra Orbit AS (Laurent Bertino)
Actimar SA (Raymond Nerzic)
Duration: 3 years 2006 - 2008
- Stabilisation of top of the line corrosion rate
Institutt for energiteknikk (IFE) / Total Norge / Norske Conoco Phillips (Arne Dugstad)
Total S.A / ENSEE Grenoble (Yves Gunaltun)
Duration: 3 years 2006 – 2008

INFORMATION / TELECOMMUNICATION TECHNOLOGIES / ROBOTICS

- Fibre Optic Technology
Alcatel STK, Norway (Flaarønning)
Lab. de Marcoussis, France (Torchin)
Duration 1989 – 1990
- Computer aided navigation of mobile robots using animated synthetic images
SINTEF, Norway (V. Kallevik)
CYBERNETIX, France (P. Baraona, D. Sangouard)
Duration 1990 - 1991

- ACM, Advanced Configuration Management (NOMADE + EPOS)
Norwegian Institut of Technology, Trondheim, Norway (Conradi)
LGI, Nomade Team, Grenoble, France (Estublier)
Duration 1991 - 1992
- Interactive home support systems for protected housing
Man Machine Technology AS, Norway (Anderson)
Pierron SA, France (Viala, Legrand)
Duration 1992 - 1993
- Eviacsim – An interactive evacuation simulation system tool
A/S Quasar Consultants, Norway (K. Harald Drager)
Simulog, France (Bruno Arbaud)
Duration 1992 - 1993
- High performance safety and security detector field bus
Autronica AS, Trondheim, Norway (Gunnar Haveland)
Automatismes Sicly, Le Blanc-Mesnil, France (Thierry Chabot)
Duration 1994 - 1997
- TRICAD – Triangulation of CAD geometries
ViewTech, Norway (Tor Helge Hansen)
Transvalor, France (Etienne Wey)
Duration 1999 - 2000
- Secure software distribution and payment over Internet
Sospita AS (Protective Technology), Mandal, Norway (Ulf Carlsen)
Gemplus, Gémenos, France (Pierre Girard)
Duration: 1999-2001
- HP-Sim: High Performance Seismic Imaging)
Para//ab / Norsk Hydro, Bergen, Norway (Tor Søreвик)
Armines-Geophysique, Fontainebleau, France (Philippe Thierry)
Duration: 2000-2001
- 3D Geometry System integrated with haptic and kinaesthetic solutions
Compu Touch AS, Norway (Frank Robert Berg)
Atomic Energy Commission, France (CEA) (Guy Le Bras)
Duration: 2001-2002
- Software Components for Building Complex 3D Geological Models (2001-2003)
GeoCap AS, Norway (Olav Egeland)
Armines / IFP, France (Jean-François Rainaud)
- Medical Device Software Assessment for Certification
Det Norske Veritas AS, Oslo, Norway (Torbjørn Skramstad)
ISOSCOPE, Toulouse, France (Christian Rouve)
Duration: 2000 - 2004
- Simulation and planning for Robotic Education and Distant Surgery
Sim Surgery AS, Norway (Jan Sigurd Røtnes)
IRCAD, France (Luc Soler)
Duration: 2003-2004

- Development of innovative IT solutions for Shipbrokers
Unified Messaging Systems, Norway (UMS) (Harald Lindbäck)
AXS Marine SA, France (Fabrice Demichel)
Duration: 2003-2004
- Modelling electricity prices in European markets with an emphasis on risk analyses
Kjell Magnus Maribu – postdoctoral studies at École des Mines de Paris
Duration : Six months 2006
- Localisation of drifting objects and decision aid system for maritime search and rescue (SAR)
CMR Computing / Met.no (Kjell Røang)
ACTIMAR / IFREMER (Raymond Nerzic)
Duration: 2006 – 2008 (Σ! 3652)

MATERIAL SCIENCE AND TECHNOLOGY / MARINE TECHNOLOGY

- Advanced light metals for car engines
Hydro Aluminium, Sunndalsøra, Norway (L. Auran)
PSA Velizy, France (R. Moore)
Duration 1988-1992
- Postal container for ATR
Hydro Aluminium, Norway
Avions de Transport Regional (ATR), France
Duration 1990 - 1991
- Microstructurally based modelling of plastic anisotropy
Hydro Aluminium, Metallurgical R&D Center, Sunndalsøra, Norway (A. Aafлот)
Pechiney Recherche, Voreppe, France (B. Marandet)
Duration 1991 -1992
- Recovery of Aluminium Alloys
Hydro Aluminium, R&D Materials Technology, Norway (Trond Furu)
Pechiney CRV, France (D. Duly)
Duration 1993 - 1996
- Modelling and improved cooling of aluminium extruded sections
Hydro Aluminium, R&D Materials Technology, Norway (Antonie Oosterkamp)
Bertin & Cie, France (J. Street)
Duration 1994 - 1997
- Electrophoretic and sol-gel methods for anticorrosive mineral coatings
SINTEF Materials Technology, Norway (Christian Simon)
Institut Français du Pétrole, France (Benjamin Cabot)
Duration 1994 – 1997
- Piezo-composites in underwater transducers
Simrad Norge AS, Horten, Norway (Helge Bodholt)
Imasonic, Besançon, France (Gerard Fleury)
Duration 1996 - 1998

- Carbon particle upgrading by plasma
SINTEF/NTNU, Norway (Jon Arne Bakken)
ARMINES, Centre d'Énergétique, Sophia Antipolis, France (Laurent Fulcheri)
Duration 1998
- Development of high performance and safety improved work clothing for the oil industry
SINTEF Unimed, Øglænd Pioner, Norway (Arvid Påsche)
Pinatel et Chapuis Textiles, France (Pierre Baleix)
Duration 1998 - 1999
- Inductive plasma purification of metallurgical silicon using inductive plasma in order to obtain silicon with purity suitable for solar cell manufacturing
Elkem ASA, Kristiansand, Norway (Pål Runde)
PREMIS Technologies, Ascoux, France (N. Perrodin)
Duration: 1999 – 2001
- High temperature pressure sensor (2000 - 2001)
PreSens, Oslo, Norway (Frode Meringdal)
Cea Leti, Grenoble, France (Bernard Diem)
Duration: 2000 - 2001
- Aluminium components subjected to impact loading conditions
SIMlab, NTNU / SINTEF / Hydro Aluminium, Norway (Magnus Langseth)
LMT-Cachan / Renault, France (Ahmed Benallal)
Duration: 2003-2005
- Novel silicon feedstock by agglomeration of silicon powder and further refining by thermal treatment and reactive metallurgy
Silicon Technologies AS, Norway (Bruno Ceccaroli)
EMIX SA, France (Didier Landaud)
Duration: 2005
- Up-scaling of advanced ceramic membrane processes for fish oil separation
Due Miljø and SINTEF Materia, Norway (Eddy Torp and Bente G. Tilset)
CTPP / IFREMER, France (Charles Delannoy) and NOVASEP Orelis
Duration 2004
- Up-scaling of advanced ceramic membrane processes for fish oil separation
Due Miljø/SINTEF, Norway (Eddy Torp and Bente G. Tilset)
CTPP / Novasep Orelis, France (Charles Delonnoy)
Duration: 3 years 2005 - 2007 (Σ! 3198)
- New process for solar silicon. Refining by thermal treatment and reactive metallurgy
Rec Silicon AS, Norway (Bruno Ceccaroli / Erik Saunar)
EMIX S.A, France. (Didier Landaud)
Duration: 3 years 2006 – 2008 (Σ! 3314)
- Intercepting HISC by ultrasonic residual stress measurements
Det Norske Veritas (Majid Anvari)
Ultra RS (Siamack Atiabi)
Duration: 1 year - 2006/07 (Finish in September 2009)

- Conception, development and testing of new aluminium casting alloys for elevated temperature applications in automobile engines
Hydro Aluminium (Petter Åsholt)
Montupet (Bruno Barlas)
Duration: 3 years 1.7.2006 – 30.6.2009 (Σ! 3698)
- Evaluation of Ready To Use crucibles for the crystallization of multi crystallised silicon ingot
NTNU, Material Science (Lars Arneberg)
Vesuvius France (Christian Martin)
Duration: 1 year 2008/09

OIL AND GAS INDUSTRY, OFFSHORE TECHNOLOGY

- Feasibility Study on Natural Gas Distribution in North Rogaland
Gasmat A/S, Forus, Norway (Rolf Rønningen)
Sofregaz, Paris, France (Saillard)
Duration 1989
- Deep Diver External Monitoring
SINTEF, Trondheim, Norway (Arvid Påsche)
COMEX SA, Marseille, France (Imbert)
Duration 1989 - 1990
- Drilling and production operation for offshore field on Norwegian waters with the Jack-up TPG 500
Wiltech Production System (WPS), Oslo, Norway (Robert Reed)
Technip Geoproduction, Paris, France (Pierre-Armand Thomas)
Duration 1989 - 1990
- Vertical resonant motions of tension leg platforms
Norwegian Institute of Technology, Trondheim, Norway (Geir Moe)
IFP, Rueil Malmaison, France (B. Molin)
Duration 1989 - 1990
- Diver survival equipment
SINTEF, Trondheim (Arvid Påsche) and Statoil/Norsk Hydro/OD, Norway
COMEX S.A., Marseille, France (Jean Pierre Imbert)
Duration 1989 - 1990
- Concrete semi-submersible production platform with rigid well risers
Oddfjell Drilling and Consulting Co. A/S, Kokstad, Norway (A.K. Nilsen)
Doris Engineering, Paris, France (J. Martin)
Duration 1991 - 1992
- Offshore loading system for LNG and LPG
Seanor Engineering a.s., Norway (Oddvar Bøyeseu)
FMC EUROPE S.A, France. (Chris Pashalis)
Duration 1992 - 1994
- Gas leak detection (GLD) system for pipelines
Simrad Marine, Norway (Kjell Dalland)
Metravib, France (Pierre Schindler)
Duration 1993 - 1994

- Development of methods for inspection of steel layers in flexible pipes
Robit, Norway (Morten Eriksen)
Coflexip, France (Barthelemy Laurant)
Duration 1993 - 1994
- New Multilevel downhole seismic acquisition system
READ Well Services AS, Norway (Karl A. Berteussen)
IFP, Rueil Malmaison, France (Jean Laurent)
Duration 1994 - 1996
- A new generation of zeolite catalyst for hydrocracking
Statoil Research Centre, Norway (Bente Bøe)
Institut Français du Pétrole, France (Eric Benazzi)
Duration 1997 - 2000
- Travel support in connection with the establishment of possible co-operation between NTNU and IFP
Professor Gudmundsson, NTNU, Trondheim, Norway
Duration 1998
- Fatigue behaviour of offshore loading hoses
Advanced Production and Loading (APL) AS, Norway (Jan V. Aarsnes)
Trelleborg Kleber Industries, France (Jacques Cognard)
Duration 1999 – 2000
- Increased Field Profitability by Improved Uncertainty Management
Det Norske Veritas (DNV), Norway (Øivind Johnsen)
Institut Français du Pétrole (IFP), France (Daniel Averbuch)
Duration 2002 - 2003
- Application of a new encapsulation process in petrochemistry
KeraNor/SINTEF Materials Technology, Norway (Christian Simon)
Institut Français du Pétrole/Université de Franche-Comté, France (Alain Fossy)
Duration: 2002 – 2004 (Extended to a EU project (NANOCAPS) in March 2004)
- Stabilisation of the top of the gas lines corrosion rate
Institut for energiteknikk (IFE) / Total Norge / Norske Conoco Phillips, Norway
(Arne Dugstad)
Total S.A / ENSEE Grenoble, France (Yves Gunaltun)
Duration: 3 years 2006 - 2008

SPACE TECHNOLOGY

- Aerospace Vehicle Numerical Flow Simulation and Wind Tunnel Test
CFD, Trondheim, Norway (Helge Nørstrud)
Aerospatiale, Toulouse, France (Corinne Rey)
Duration 1990 - 1992
- Technology Program – Thermal Protection Materials for Propulsion Systems
Raufoss, Norway (Haugen)
SNPE Paris, France (Faure)
Duration 1992 - 1993

- Zeolite Synthesis under Microgravity
SINTEF (SI), Norway (Stöcker)
Université de Paris VI+VII, France (Robert)
Duration 1991 - 1992
- Save filter bank for flexible multi beam payload
Ame Space, Norway (Øivind Andreassen)
Alcatel Espace, France (Herve Snorre)
Duration 1993 - 1995
- French / Norwegian study of increased space technology industrial co-operation
Europavia Norge A/S, Norway (J.C. Width)
CNES, France (Yves Rebillard)
Duration 1993
- Development of adaptive mesh for space propulsion systems
CDF Norway AS, Norway (Helge Nørstrud)
SNECMA, France
Duration 1994 - 1996
- Development of a bi-propellant flow control valve for satellite propulsion
Raufoss Technology AS, Raufoss, Norway (Per Eger)
Aerospatiale Espace Défense, Les Mureaux, France (J. Astier)
Duration 1996 – 1998
- Introduction to the French Aerospace Industry
Einar Sørensen, Norway
Duration 1999

MISCELLANEOUS

- Olympic winter games – Albertville 1992 / Lillehammer 1994
Potential fields of industrial co-operation
NIA, Norway(Per Axel Prydz)
COJO/LOOC. France
Duration 1991 – 1992
- Creative project – 1st step marketing study
Statoil, Norway (EUREKA support)
CETIM, France (FNS support)
Duration 1993
- Development of a new generation self-contained closed circuit breathing apparatus
Thelma AS, Norway (Arvid Påsche)
Fenzy S.A, France (Robert Michel)
Duration: 2001 – 2002
- Developing an Intangible Asset Valuation Tool
InSpire Invest AS (Jan-Olaf Willums)
Integral Development Asset Management (Antoine Dehen)
Duration: 2005/06

- Consumer conceptions of local food
SIFO (Virginie Amilien)
INRA and UMR MOISA (Fatiha Fort)
Duration: 2005 - 2007