by Kim Sahng-Yup

CCOP—an intergovernmental organisation in East and Southeast Asia

Figure 1 The CCOP region and member countries.

For thirty years, CCOP has been active in promoting cooperation in coastal and offshore geoscience between the nations of East and Southeast Asia. Commencing as an exploration-oriented organisation beneath the umbrella of the United Nations, it is now a fully autonomous, self-governing body which has expanded its scope to include projects, which although firmly aimed at the promotion of economic development in the member countries, also address environmental problems especially in heavily populated coastal areas. The establishment of an expert local geoscience cadre has been a high priority and has achieved considerable success.

and the Philippines under the auspices of ESCAP and the United Nations with the title of Committee for Coordination of Joint Prospecting for Mineral Resources in Offshore Asia. The initial objective was to cope with the increasing demands for and great potential of oil and gas as well as other minerals in the region. It expanded later to include 11 member states with the participation of Cambodia, Indonesia, Malaysia, Papua New Guinea, Singapore, Thailand and Vietnam (Figure 1). The Trust Territory of the Pacific Islands was a member from 1975 to 1981.

CCOP became an independent intergovernmental organisation in 1987 based on the common understanding of its member countries and the aspirations of the United Nations. Since then, CCOP has become orientated towards regional cooperation financially and technically supported by its cooperating countries. These are Australia, Belgium, Canada, Denmark, France, Germany, Japan, The Netherlands, Norway, the Russian Federation, Sweden, Switzerland, the United Kingdom and the United States of America.

CCOP readjusted its mandate in the early nineties to to promote coordination and cooperation in geoscientific programmes for sustainable economic development in the coastal and offshore areas of East and Southeast Asia. Coastal environmental management became a main target in line with increasing environmental concern from its member countries as well as the rest of the world, over problems caused by human activity and booming economic development in coastal zones. Accordingly, the Technical Secretariat, is now organised into three sectors, responsible for energy, minerals and coastal zones respectively. The name of the organisation was

Introduction

The Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia (CCOP) is a regional geoscientific organisation, based in Bangkok, Thailand, which is aimed at the coordination of, and cooperation in, scientific activities related to coastal and offshore geosciences, mineral resources and the environment. It was initiated in 1966 by China, Japan, Republic of Korea

changed in 1994, to the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia, but the acronym CCOP was retained.

CCOP has made technology transfer and human resource development its top priority for promoting sustainable socio-economic development. This will not be fully achieved if there is a shortage of skilled professionals in individual countries to deal with their country's needs in natural resources. Over the past three decades, CCOP training programmes, either independent or affiliated to projects, have created opportunities for thousands of participants to refresh their geoscientific thinking and knowledge.

At the same time, CCOP has devoted itself to regional data compilation and database development to stimulate more efficient exploration based on better-understood regional geology. During the past 30 years, CCOP has published a great number of papers on the geology of the region and member countries, and a wide range of maps showing geotectonics, geology, geophysics and Tertiary sedimentology. With the map compilations, project-based databases have been developed, and an integrated regional database is expected in the future.

The structure of the organisation is shown in Figure 2. The Technical Secretariat works as the executive agency under the supervision of a Steering Committee which consists of the permanent representatives of the member countries. As a policy-making body, the Committee meets twice a year to discuss common concerns and business of the organisation. The representatives of cooperating countries constitute the Advisory Group which provides suggestions and advices to the Steering Committee for decision making.

Delegates from both member and cooperating countries meet at an annual session at which participants report on the progress of CCOP technical activities in individual countries and review the administrative and technical activities of the Technical Secretariat. Technical presentations are regularly published in CCOP Proceedings.

The Director of the Technical Secretariat is elected by the member countries every three years. Three Divisions deal with adminis-

Figure 2 Organizational chart of CCOP.

tration and finance, information and documentation, and technical and training services, respectively. Experts from cooperating countries serve as project coordinators in the secretariat and form a technical group under the Director.

CCOP is financially subsidised by member countries' annual contributions. Technical projects are financially and technically supported by cooperating countries or organisations.

Assistance in offshore minerals surveys

Initially, offshore geological/geophysical surveys, for tin and other detrital minerals, were the main components offered by cooperating countries and organisations to CCOP members. The Australian Government supported a programme for the investigation of detrital heavy minerals in coastal areas in 1967 and for almost 20 years, beginning in 1973, there were many UNDP-supported, offshore surveys. In these surveys, CCOP provided equipment, financial support and expert services. On-the-job training was always the first priority in order to help member countries develop their own expertise in such a surveys. Original data were interpreted by CCOP experts in cooperation with local experts and kept by the relevant geological survey agencies.

The sixties-early seventies was a critical period for many member countries who then suffered from internal shortages of equipment and expertise in offshore work. Most, such as Malaysia, Indonesia, Thailand, the Philippines, Papua New Guinea, Singapore, Vietnam, China and Korea, benefited from these CCOP surveys which not only disclosed the shallow geology in areas with significant mineral potential, but also gave the opportunities for the member countries to build their own professional teams (Figure 3). Nowadays, all member countries have such teams, equipped with advanced geophysical instruments, and capable of undertaking offshore surveys for either detrital minerals or engineering projects related to offshore oil exploration/production and environmental issues. In this respect, the contribution of CCOP can never be overstated.

Figure 3 Geological/geophysical surveys provided by CCOP.

Towards more efficient resource hunting

The CCOP offshore areas lie within one of the most complex tectonic provinces in the world. The main part of the region lies on the continental shelves of the Eurasian Plate. The Pacific Plate, moving westwards, is being subducted beneath the Eurasian along the island-arc system from Japan in the north to the Philippines in the south. Following Gondwanaland break-up, the Australian Plate moved northward to collide with the Eurasian along a zigzag suture zone in east Indonesia. The Indian Plate also moved towards the north and collided with the Eurasian in the Cenozoic causing the closure of the eastern extension of Tethys. Small plates and microcontinents developed from time to time and became actively involved in the complicated regime of plate movements.

The offshore area of East and Southeast Asia may be considered as the biggest back-arc basin in the world. Surrounded by island-arcs in the east and south with gateways to the open sea, the basin has been subjected to scattered back-arc sea-floor spreading since the late Cretaceous. Sea-level fluctuations have also influenced current circulation and hydrodynamic systems of the basin, causing complex sedimentary patterns. In this complicated geological setting there is potential for a variety of natural resources, in particular, oil and gas in the Mesozoic and Cenozoic basins and for metal mineral resources associated with the subduction and collision zones. Efficient resource hunting must be based on a full understanding of the geological history of the targeted area together with reliable regional stratigraphic correlation. For decades, CCOP has therefore devoted itself to regional geological data compilation as well as regional surveys to improve understanding of regional geology.

CCOP, in cooperation with the Intergovernmental Oceanographic Commission (IOC), initiated the programme *Studies in East Asian Tectonics and Resources* (SEATAR) in 1973 as a part of the International Decade of Ocean Exploration (IDOE). Ten crustal transects were selected for geological and geophysical surveys to delineate the geotectonic framework of the region. The programme was completed in 1991, although only three out of the ten sections have been published due to financial constraints. In parallel with the SEATAR programme, coordinated magnetic surveys were conducted, supported by the US Naval Oceanographic and Aeronautical Administration (NOAA). Other US institutions, the Federal Republic of Germany, Japan, United Kingdom and France also contributed greatly to the implementation of these coordinated surveys.

The SEATAR programme was followed by the compilation of a 1:2 000 000-scale geotectonic map of East and Southeast Asia, focused on the spatial distribution of crustal plates. The data, supplied by the national working groups of the participating countries, have been digitised and will be published on CD-ROM. The map presents an interpretation of the geological evolution and the distribution, in time and space, of non-living resources in various geotectonic settings. It thus serves as a most valuable reference for resource evaluation and prospecting. This project is financially and technically supported by Japan and CPC.

With financial support from the Japanese Government and technical support from the Geological Survey of Japan, a 1:2 000 000 geological map of the CCOP region (DCGM Phase I), is in the final stages of digitisation and CD-ROM production. This map is based on recently published maps of CCOP member countries, and could be used as the basis for the compilation of many specialised thematic maps.

To provide more detailed basic data for interpretation of the geoscientific maps mentioned above, a geological correlation project (WGGC) was launched in 1996, with the financial and technical support from the Circum-Pacific Geospatial Database Programme (CPGDP). The main purpose of this project is to build a regional database through data integration and correlation on biostratigraphy, lithostratigraphy and geochronology. The datasets will finally be published on CD-ROM, and will contribute to the standardisation of various databases in CCOP member countries.

In addition, as part of the thematic map series covering the region, an ambitious project for data compilation supported by Japan, a magnetic anomaly map of East and Southeast Asia (1:4 000 000) has been published both in hard copy and on CD-ROM. A heatflow map (1:2 000 000) is also in the final stages of digitisation.

Early in 1996, CCOP began the compilation of a digital map of marine geology and mineral resources (DCGM Phase II) showing young-sediment distribution in the offshore areas of the region. This will be useful for offshore construction and hydrocarbon exploration, offshore environment management as well as detrital mineral resource assessment.

In short, great efforts have been made by CCOP in the compilation and upgrading of regional geoscientific maps. A regional database is on the way, and will lead to deeper understanding of the geology of the region, so essential for the sustainable development of natural resources.

Oil and gas assessment and management

The significant potential for oil and gas accumulation in offshore East and Southeast Asia, was a major factor in the founding of CCOP in the sixties. However, systematic programmes of oil and gas data collection and resource assessment did not begin until 1978. A working group on petroleum data (WGPD) was established in 1979, in cooperation with ASCOPE, for the standardisation of terminology and data format in the energy sector. Following this initiative, several other working groups, such as those on Petroleum Geology (WGPG) and Heat Flow were set up for technology transfer and investigation. A great break came in 1986 when the Working Group on Resource Assessment (WGRA) was established with the support of USGS, GSC, IUGS, NECOR, GSJ, CPC, ASCOPE, UNESCO and GEOSEA. In 1989, the CCOP Technical Secretariat signed the first agreement with the Norwegian Agency for Development Cooperation (NORAD) for a three-year project on hydrocarbon resource assessment with a focus on technology transfer and data compilation. A total isopach map of the Tertiary offshore East Asia was compiled and digitised to show the Tertiary petroliferous basins in the region. The map was published in 1991 with an explanatory text (Technical Bulletin 23). A play exercise was also published with detailed play data from participating countries. Updated software was transferred to member countries for use in resource assessment.

A project on oil and gas resource management (OGRM) was launched in 1991 under the Norway-CCOP cooperation framework. Apart from the intensive technology transfer on resource-management principles and decision-making procedures, the project brought about the publication of a composite map of Tertiary sediments offshore East and Southeast Asia on a scale of 1:2 000 000 and a play atlas. The map series comprises lithofacies, paleoenvironment and isopach maps for the three units of the Tertiary. The lithofacies distribution and its paleoenvironmental interpretation accompanied by detailed isopach data for different stages of the Tertiary have exposed the spatial pattern of sedimentation in a time succession. The play atlas included two plays, one carbonate and one clastic, from each country. This is the first time that such detailed data has been published in the region. A CD-ROM version, which includes the total isopach map, the composite maps and the play atlas was published early in 1996.

As a continuation of the effort, a two-phase project on resource evaluation and planning (REP) was established in 1995 with the support of NORAD. Phase I focusses on the training of junior geologists from Cambodia, Vietnam, the Philippines, Papua New Guinea and Thailand; Phase II on transferring technology on resource evaluation and planning to all CCOP member countries.

Basin modelling and basin analysis are fundamental to a deeper understanding of the petroleum geology and assessment of resources. To this end, projects entitled *The Thermal History of Petroliferous Basins of the CCOP Region* and *Seismic Sequence*

Stratigraphy of the CCOP Region were implemented with the financial and technical support of the United Kingdom. A project on basin analysis and description in the CCOP region by using high-resolution sequence stratigraphy and basin modelling was initiated in 1995 by the Geological Survey of Denmark and Greenland, financially supported by the Danish Government, with its first phase in Vietnam. The project will extend to other CCOP members in its second phase.

Pilot studies on pre-Tertiary geology have not been neglected. Stratigraphic and paleoenvironmental data have been collected from concerned member countries and published in CCOP technical publications with the support of French Government. A comprehensive regional database on pre-Tertiary rocks was developed in 1993. The results will benefit member countries as well as private oil companies exploring for hydrocarbons in pre-Tertiary rocks.

Although the funding source are diverse, the CCOP energy programme has been sustained as a systematic regional endeavour of resource assessment and evaluation supported by affiliated projects. It is fundamental to sustainable development of the oil industry in the region. In addition, CCOP has paid great attention to environmental issues related to the oil industry. An oil-drift model developed by Norwegian scientists has been introduced to CCOP and ASCOPE members as the results of the CCOP/ ASCOPE/ NORAD environment and safety programme.

Being aware of the risk of environment deterioration in offshore oil exploration and production, CCOP, ASCOPE and PETRAD have prepared a project proposal entitled *The CCOP/ ASCOPE/ PETRAD Environment and Safety Programme (CAPES)* to carry out intensive technology transfer to ensure an environmentally sound oil industry. Funds are now being sought for another project proposal called *PETROWATER*. This will apply advanced technology used in the oil industry, such as drilling, to groundwater-resource studies in coastal areas. These two projects are both under consideration by Norwegian funding agencies.

Integrated geoscience in coastal zones

The importance of Quaternary geological studies in the CCOP region has been recognised for some time. Focus was firstly laid on tin deposits and other detrital heavy minerals on continental shelves. Since the Middle 1970s, with the support of Belgium, the Netherlands, and Switzerland, detrital mineral assessment has led to improved knowledge of Quaternary stratigraphy, Quaternary mapping, young sediment dating and applied Quaternary geology.

Systematic studies on Quaternary geology and young sediments were accompanied by intensive technology transfer and publications among which *Shallow Seismic Reflection Profiles from the Water of East and Southeast Asia* produced with the support of the UK is widely appreciated by CCOP member countries.

Following an awareness of global climatic change and concern about its future impact on socio-economic development in coastal areas, CCOP has shifted its focus with regard to Quaternary geology and is directing its attention to coastal environmental management.

In early 1991, CCOP sponsored a symposium, in Chiangmai, Thailand, to address the theme *Global environmental change: the role of geosciences—past, present and future sea level changes*. Participants from both member and cooperating countries/organisations expressed their concern over the impact of human activities on global climatic change. The economy of CCOP member countries are booming, particularly in coastal areas which are the most densely populated in the world. Environmental problems have already occurred and any ill-considered development strategy could have more serious consequences not only within the region, but also in the world as a whole. However, most CCOP member countries were faced with shortage of knowhow and technologies to deal with coastal environmental issues. The participants also realised that geosciences should play an important role in coastal zone management to protect human society from environmental deterioration. In addition

to the actions to raise the awareness of concerned decision-makers, a task force was established to find more facts and prepare a project proposal for the consideration of cooperating countries/organisations. This was the beginning of the CCOP COASTPLAN, an initiative which aims at the integrated application of geoscience to coastal zone management to ensure an environmentally sound sustainable socio-economic development.

The CCOP COASTPLAN was officially approved by the Government of the Netherlands for implementation in 1995. Technically, it consists of two segments: roving seminars and case studies. In both, technology transfer and human resource development have top priority. Emphasis is on urban geology, land development and geohazard mitigation, firmly based on studies of coastal geological processes.

Other cooperating countries/organisations have shown interest in the project and have pledged full support and cooperation. For example, the British Geological Survey launched a bilateral project in Labuan, Malaysia in 1992 for establishment of a database for coastal zone management under the CCOP umbrella as a pilot project of the CCOP COASTPLAN. Canada also provided resource persons for roving seminars. It is expected that the CCOP COASTPLAN will raise common awareness of CCOP member countries, foster an expert team to deal with coastal environment problems with updated technology and knowhow and foster environment-friendly economic development strategies in CCOP coastal areas.

Responding to an international call for hazard mitigation and viewing the great risk of geohazards in the CCOP region, the CCOP Steering Committee decided, at its Tsukuba meeting in 1995, to establish a geohazard sector in the Technical Secretariat to initiate and develop projects related to geohazard mitigation in the region. The geohazard mitigation efforts will cooperate closely with the CCOP COASTPLAN.

Regional database development

Data collection and interpretation are key activities in geoscience. Although, the main mission of the organisation is to coordinate regional technical cooperations among member and cooperating countries, CCOP, as a consolidated international body, also has a role to play in regional database development. Databases have been well developed in member countries on various geoscientific subjects and it is not necessary for CCOP to duplicate those efforts. Rather, its main interest is in regional data at small scale concerning regional geological settings.

Computer technology has been widely used and the Technical Secretariat has been equipped with complete computer facilities. All the recent CCOP outputs have been digitised and it is planned to develop databases for all future projects as soon as they are concluded. This will lead to a rather comprehensive regional database in the future.

Efforts have also been made to standardise databases in member countries to facilitate the mutual exchange of data. For this purpose, several activities have been organised. For example, in 1993–1994, CCOP developed and distributed software (SPDATA) for the digitisation of marine geological/geophysical data. In 1996, the geological correlation project (WGCG) provided unified data formats for the development of a regional stratigraphic database. It is fully recognised that a unified regional data standard is difficult goal to achieve because each country has its own needs and priorities. However, the effort to establish easy access to country databases will be useful and valuable.

Technology transfer and training

Technology transfer and human resource development are top priorities and thousands of people have benefitted from CCOP training. In the 1980s, special funds were available for manpower training but

changing funding sources in 1990s now require training programmes to be organised as part of individual projects. Resource persons for training activities are usually seconded by cooperating countries as in-kind contributions. Emphasis has been put on applied geosciences in addition to basic geological principles and methodologies. The application of computer technology in geosciences has been the main area of training in recent years. Software for map digitisation, geothermal modelling and oil and gas resource assessment and management have been supplied to and are widely used by member countries.

Friendship, and a spirit of cooperation, have been fostered through these training activities, and the resultant harmonious working atmosphere has ensured the success of CCOP technical programmes.

CCOP publications

Since its establishment, CCOP has seen publication of project outputs as one of its main duties. The development of science needs exchange of information and views. Results of studies should be fully used to benefit the region and its member countries. Furthermore, publications create opportunities for the promotion of the regions own experts in the outside world. An efficient publication system has been established in the Technical Secretariat, producing a Newsletter, a Technical Bulletin, Technical Publications, Proceedings of annual sessions and thematic maps. After every technical activity, a report is prepared for circulation among member countries and participants.

Since the middle sixties, CCOP has published 21 volumes of Newsletters; 25 volumes of Technical Bulletins; 26 volumes of Technical Publications and 32 volumes of Proceedings. The data and information included are regarded as a precious treasure of the organisation. These publications are regularly exchanged with other international and professional organisations. CD-ROM has been introduced in the past few years and is already extensively used for publication of project outputs. This medium will continue to be widely used in the future. Full titles of technical bulletins and publications are listed in Appendices 1 and 2.

Conclusions

In its 30-year existence, CCOP has been a great success as a regional intergovernmental organisation. This is mainly because the organisation is founded on effective regional cooperation in applied geoscientific programmes to serve the member countries for wealth creation, poverty alleviation and life quality improvement that fits the development needs of its 11 member countries, and therefore is highly appreciated and supported.

The organisation has an efficient Technical Secretariat and a reasonable management system. It orients its mandate and cooperative projects upon urgent countries' needs on a regional basis. It lines its activities with the newest development trend of geosciences and donor's interest, and focuses on upgrading member countries' capability in resource hunting and environmental protection through active technology transfer and human resource development. It produces outstanding outputs and regional geological understanding to benefit both member countries and international societies. The organisation insists on the combination of short- and long-term considerations together to ensure the maximisation of benefits to its member countries. It has, therefore, won worldwide recognition and strong support from its cooperating countries/organisations.

Because geology is a science without political boundary, it desperately requires joint efforts and regional cooperation. Therefore, CCOP always emphasises the regional nature of its technical programmes as its top priority. The understanding of regional geology will make resource exploration and development more successful and cost-efficient, and provide regional assessment of environment

quality for policy making. The exchange of information and views will provide a chance for the countries, who live in a similar geological environment and are faced with common concerns, to learn from each other. The close cooperation between CCOP and its cooperating countries has pushed the CCOP region closer to the rest of the world, and is why the organisation could survive for another 30 years.

Such cooperation is of particular significance for developing countries. In many aspects, multilateral cooperation is still valuable and, to some extent, cannot be replaced by bilateral cooperation. The successful experience of CCOP may provide some pointers for the developed countries to define their aid policies.

Acknowledgements

I would like to express my sincere gratitude to Professor He Qixiang for making this article possible. I also acknowledge my indebtedness to Dr Tony Reedman of the British Geological Survey and to Dr Henk Schalke of the Geological Survey of the Netherlands for their constructive remarks. I would also like to thank my friends in CCOP member and cooperating countries as well as to my colleagues in the Secretariat who encouraged me to produce this paper.

Appendix 1 Technical bulletins

- 1 Korea strait, Penghu, Islands, Japan trench, East China Sea, Sunda Shelf, bibliography Viet Nam. June 1968, published by the Geological Survey of Japan.
- 2 Luzon gravity. Singapore geology, Tungliang RL-1 well (Penghu), offshore coalfields Japan. May 1969, published by the Geological Survey of Japan.
- 3 Seismic survey offshore Viet Nam, Sunda shelf geology, offshore petroleum prospects Eastern Asia. May 1970, published by the Geological Survey of Japan.
- 4 Aeromagnetics Korea, aeromagnetics Philippines, structural framework South China Sea. June 1971, published by the Geological Survey of Japan.
- 5 Detrital heavy minerals CCOP region. June 1971, published by the Geological Survey of Japan.
- 6 Yellow Sea, Taiwan strait; structure and stratigraphy of the China basins, aeromagnetic survey Palawan, seismic investigations Sunda shelf, structure Java sea. July 1972, published by the Geological Survey of Japan.
- 7 Plate tectonics Indonesia, sonobuoy measurements Java Sea, stratigraphic studies Indonesia. November 1973, published by the Geological Survey of Japan.
- 8 Seismic surveys Korea, Geology Korea, Banda arc petroleum prospects, Indonesian Tertiary basins, hydrocarbon exploration India, organic metamorphism. December 1974, published by the Geological Survey of Japan.
- 9 Earth energy balance, geological environment of Indonesian mineral deposits, silica sand deposits. Thailand. December 1975, published by the Geological Survey of Japan.
- 10 Evolution Western Pacific, petroleum geology offshore Japan, sedimentary basins Philippines, petroleum geology of China. December 1976, published by the Geological Survey of Japan.
- 11 Offshore hydrocarbon and heavy mineral investigations in East Asia. October 1977, published by the Geological Survey of Japan.
- 12 Satellite imagery Japan, heat flow Thailand, Tertiary coal basins Indonesia, evolution Sunda-arc and central Sumatra. October 1978, published by the Geological Survey of Japan.
- 13 Gravity surveys Indonesia, heat flow in exploratory wells offshore Malaysia, Quaternary geology Malaysia. December 1980, published by the Geological Survey of Japan.
- 14 Gyeongang basin, Ogcheon basin, geologic evolution Korea, subduction off northeast Japan. December 1981, published by the Geological Survey of Japan.
- 15 Heat flow and geothermal measurements Philippines, Java, Papua New Guinea, Malaysia, Neogene movements Tohoku arc. December 1982, published by the Geological Survey of Japan.
- 16 Jurassic in Southeast Asia, aeromagnetic survey Philippines. December 1983, published by the Geological Survey of Japan.

- 19 Results of the Japan–Indonesia Cooperative programme in the Sunda Forearc area. December 1987, published by the Geological Survey of Japan.
- 20 Late Palaeozoic and Mesozoic fossils of West Thailand and their environments. December 1988, published by the Geological Survey of Japan.
- 21 Gold mineralization, heavy mineral, heat flow data, gravity, hydrocarbon assessment, Quaternary stratigraphy in CCOP countries. December 1990, published by the Geological Survey of Japan.
- 22 Carboniferous corals of Thailand. April 1991, published by the Geological Survey of Japan.
- 23 (6 sheets with its explanatory text) Total Sedimentary Isopach Maps, Offshore East Asia (Phase I). September 1991, published by the Geological Survey of Japan.
- 24 Permian corals of Thailand. March 1994, published by the Geological Survey of Japan.

Appendix 2

Technical publications

- 1 The offshore hydrocarbon potential of East Asia: 1966–1974, published by the Geological Survey of Japan.
- 2 Report of the IDOE Workshop: Metallogenesis, Hydrocarbons and Tectonics Patterns in Eastern Asia, 1974, published by the Geological Survey of Japan.
- 3 Proceedings of the Seminar on Isotopic Dating July 1976, published by the Geological Survey of Japan.
- 4 The offshore hydrocarbon potential of East Asia: 1966–1975, September 1977, published by the Geological Survey of Japan.
- 5 Quaternary geology of the Malaysia–Indonesian coastal & offshore areas. November 1977, published by the Geological Survey of Japan.
- 6 Generation & maturation of hydrocarbons in sedimentary basins. January 1979, published by the Geological Survey of Japan.
- 7a Studies in East Asian Tectonics and Resources (SEATAR). 1981, published by the Geological Survey of Japan.
- 8 Collection, storage, and retrieval of geological and geophysical data. June 1980, published by the Geological Survey of Japan.
- 9 Prospecting offshore placers: drilling ships, equipment, and positioning techniques. August 1980, published by the Geological Survey of Japan.
- 10 Assessment of undiscovered oil and gas. 1981, published by the Geological Survey of Japan.
- 11 Petroleum data management and Monte Carlo simulation. 1982, published by the Geological Survey of Japan.
- 12 Exploration for offshore placers & construction materials in Southeast Asia. September 1983, published by the Geological Survey of Japan.
- 13 Palaeomagnetic research in Southeast and East Asia. March 1982, published by CCOP Technical Secretariat.
- 14 Philippines porphyry copper deposits: geologic setting and characteristics. November 1984, published by the Geological Survey of Japan.
- 15 Proceedings of the joint ASCOPE/CCOP Workshops 1 & 2: October 1981, Jakarta; October 1984. Bangkok 1984, published by the Geological Survey of Japan.
- 16 Proceedings of the Workshop on Dating Young Sediments, Beijing, China, September 1985. 1986, published by the Geological Survey of Japan.
- 17 Seismic Stratigraphy I, Proceedings of the Joint ASCOPE/CCOP Workshop I, June 1986, Jakarta, Indonesia. 1987, published by the Geological Survey of Japan.
- 18 Progress in Quaternary Geology in East and Southeast Asia—Proceedings of Symposium, Bangkok, October 1986. 1987, published by the Geological Survey of Japan.
- 19 The Pre-Tertiary Fossils of Sumatra and their Environments by Henri Fontaine and Suudi Gafoer. March 1989, published by the Geological Survey of Japan.
- 20 Ten years of CCOP research on the Pre-Tertiary of East Asia by Henri Fontaine. January 1990, published by the Geological Survey of Japan.
- 21 Proceedings of the CCOP Heat Flow Workshop III. August 1990, published by the Geological Survey of Japan.
- 22 The INQUA International Symposium on Stratigraphy and Correlation of Quaternary Deposits of the Asian and Pacific Regions. January 1991, published by the Geological Survey of Japan.
- 23 CCOP/WGRA Play modelling eExercise 1989–1990. December 1990, published by the Geological Survey of Japan.
- 24 25th Anniversary volume of CCOP Technical Publication Series. October 1991, published by the Geological Survey of Japan.
- 25 Studies in East Asian Tectonics and Resources Crustal Transect IV Banda Sea. December 1991, published by the Geological Survey of Japan.
- 26 Studies in East Asian tectonics and resources Crustal Transect VII Jawa–Kalimantan–Sarawak–South China Sea. December 1991.

Further information

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