

NCP Information Session School of Mechanical and Mining Engineering

Nicholle Elford

Friday 23 February 2024



Contact details

studentenquiries@mechmining.uq.edu.au

Level 4, Mansergh Shaw (45)

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Prior to Applying

☑ Familirise yourself with the information, available on the <u>School Website</u> for details on:

- Eligibility and selection criteria.
- Travel dates and indicative costs.

☑ Check you have elective space in your program for MECH4950 – we recommend contacting The EAIT Faculty for a progression check.

☑ Check you have a valid Australian Passport (more than 6 months validity).



Mobility Grant

Successful applicants will receive a \$3000AUD mobility grant that can be used towards trip costs including:

- Kyushu program Fee (*The program fee is stipulated by Kyushu University*).
- Flights & Accommodation.
- Meals & local transport costs during the program.

Please note: The University of Queensland will pay the Program fee in a lump sum to secure a cheaper price. *Students will receive the remaining funds.*

Students may not receive the mobility grant prior to booking of flights.

Students are required to self-fund any additional costs beyond the mobility grant amount.



How to Apply

Complete the online application form available on the School Website.

More Info/Apply:



Applications close at 10:00am on Monday, 11 March 2024.



Agenda for MECH4950 information seminar on Friday 23rd Feb 2024@ 46-442

- 10:00 Overview and past experiences of MECH4950 (Prof. Kazuhiro Nogita)
- 10:30 Student Perspective of MECH4950 (TBD)
- 10:40 Administrative info (Ms Nicholle Elford)
- 10:50 Q&A



New Colombo Plan Mobility Program 2024

Hydrogen Energy in Australia and Japan

- Industry Opportunities for Australia's Future Engineers -

22 students to participate in the short-term mobility program to Japan (27th June to 16th July 2024).





Project Aims

- To provide an opportunity for 22 UQ Engineering students
- The project will consist of 20 days stay.
- The project will involve on-site exchange to Kyushu University (KU) and the delivery of two series of lectures.
- Lecture topics will include Advanced Engineering Technologies with a focus on the Japanese Manufacturing Sector and Japanese Language.
- The Kyushu Economic Federation (KEF) and Fukuoka Strategy Conference for Hydrogen Energy (FSCHE) will facilitate industry involvement and the participation of manufacturing facilities (Nippon Steel, Kyushu Electric Power Co, Namura Shipbuilding Co., HyTReC, J-POWER etc.).



Dr Xin Tan

Notes

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Email xin.tan@uq.edu.au Work Phone +81-92-802-3488 (daytime), +81-080-9981-3084 (sms) Office Location Room 814, West Building 2, Kyushu University, Motooka 744, Nishi-ku, Fukuoka 819-0395, **IAPAN** Office Hours 24hours/7days (by e-mail and sms), during tour in Japan Personal Link https://researchers.ug.edu.au/researcher/28208

Nicholle Elford

Administrative Officer

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Date	Activity	Learning Objectives
19 May 23 16:00 - 19 May 23 17:00	Predeparture seminar 1 (Seminar): Guidance for Advanced Engineeringt: Sustainable Energy for a Better Future (10% assessment)	1
25 May 23 17:40 - 25 May 23 19:10	Orientation for online lecture series (Lecture): Advanced Engineering I: Sustainable Energy for a Better Future	1
01 Jun 23 17:40 - 01 Jun 23 19:10	Lecture 1 for online lecture series (Lecture): Advanced Engineering I: Sustainable Energy for a Better Future	1, 2, 3
02 Jun 23 10:00 - 02 Jun 23 11:00	Predeparture seminar 2 (Seminar): Final predeparture seminar with business card provided.	1
08 Jun 23 17:40 - 08 Jun 23 19:10	Lecture 2 for online lecture series (Lecture): Advanced Engineering I: Sustainable Energy for a Better Future	1, 2, 3
15 Jun 23 17:40 - 15 Jun 23 19:10	Lecture 3 for online lecture series (Lecture): Advanced Engineering I: Sustainable Energy for a Better Future	1, 2, 3
22 Jun 23 17:40 - 22 Jun 23 19:10	Lecture 4 for online lecture series (Lecture): Advanced Engineering I: Sustainable Energy for a Better Future	1, 2, 3
29 Jun 23 8:40 - 16 Jul 23 10:00	Kyushu Uni (Fukuoka) (International workshop and tour): The full schedule will be available on Blackboard. Readings/Ref: Blackboard; Blackboard	1, 2, 3
06 Jul 23 17:40 - 06 Jul 23 19:10	Group presentation (Workshop): Advanced Engineeringt: Sustainable Energy for a Better Future	1, 2, 3



Assessment Task	Due Date	Weighting	Learning Objectives
Report Final Report	4:00pm on Thursday 27 July 2023	60%	1, 2, 3
Presentation Summary Presentation	5:00pm - 6:20pm Friday 14 July 2023	30%	1, 2, 3
Attendance Sustainable Energy for a Better Future	18 May 23 17:40 - 16 Jul 23 10:00	10%	1, 2, 3

+ Group Presentation @ KU, and essay for NCP (1-2 pages with photos)



Assessor's name:

Presentation Assessment Sheet (MECH4950) Signature:

Group	Group Members	Total (100)	Depth of analysis and demonstration of key concepts and ideas (50)	Structure and timing (15)	Presentation (voice, professionalism, audio-visual, mannerisms) (15)	Handling of questions demonstrates a depth of knowledge (20)
1						
2						
3						
4						
5						



Mark sheet: MECH4950 report (Page 1) Marker: **Student Number:** Student Name: **Evaluation of Manufacturing in Japan and Definition and scope (10%) Background (20%) Academic and Professional Engineering Practice Grade Band** (50%) Extensive, relevant and logically organised review, 20 Excellent synthesis of background material and ideas and learning Excellent, clear definition of the topic and analysis, discussion of background material. Excellent that occurred during the NCP travel to evaluate the key concepts scope. A suitable abstract that accurately yet Both specific research and general theory, helps the (85-100%) outlined in the learning objectives. There is a clear depth to the report 46 concisely captures the topic and outcomes of reader understand the rest of the document. that demonstrates the creation and/or comparison of ideas in a the NCP travel. Demonstrates clear mastery of the material in the topic concise fashion. 43 area and ability to synthesize and abstract knowledge. Relevant and logically organised review, analysis, 42 discussion of background material. Very good synthesis of background material and ideas and learning 40 Very good definition of the topic and scope. Verv Good Both specific research and general theory, helps the that occurred during the NCP travel to evaluate the key concepts The abstract accurately captures the topic, and (75-84%) reader understand the rest of the document. outlined in the learning objectives. There is a depth to the report that outcomes of the NCP travel. Demonstrates mastery of the material in the topic area demonstrates the creation and/or comparison of ideas. 38 and ability to synthesize and abstract knowledge. 14 A good synthesis of background material and ideas and learning that 37 Good review/discussion of background material. Good definition of the topic and scope. The occurred during the NCP travel to evaluate the key concepts outlined Good Both specific research and general theory are presented. abstract captures the topic and outcomes of in the learning objectives. There is some depth to the report that 35 (65-74%) Shows good understanding of the material in the topic the NCP travel. demonstrates the creation and/or comparison of ideas. area and ability to synthesize and abstract knowledge. 33 Acceptable coverage of background material. 12 32 Satisfactory definition of topic and scope. A satisfactory synthesis of background material and ideas and Satisfactory Both specific research and general theory are presented. The abstract satisfactorily captures the topic learning that occurred during the NCP travel to evaluate the key 28 11 Shows basic understanding of the material in the topic (50-64%) and outcomes of the NCP travel. concepts outlined in the learning objectives. 25 area. 10 24 9 22 A poor attempt has been made at synthesising the background A limited coverage of background material, which material and ideas and learning that occurred during the NCP travel Poor or incomplete definition of topic and Poor 18 perhaps does not cover both specific research and scope. The abstract is not clear about the topic to evaluate the key concepts outlined in the learning objectives. The general theory. Flaws in the basic understanding of the (25-49%)15 and the outcomes of the NCP travel. report is more a chronological account of the trip with little evidence material in the topic area are evident. that new ideas were considered/generated. 13 12 2 An extremely limited coverage of background material Topic and scope are very unclear. Limited or no connection is evident between the background Very Poor 6 is included. The abstract does not summarise the report 2 material and ideas and learning that occurred during the NCP travel (0-24%)There is an apparent lack of understanding of the topic and outcomes or there is no abstract. to evaluate the key concepts outlined in the learning objectives. 0 material in the topic area.

NCP 2017-2023







THE UNIVERSITY

OF OUEENSLAND

AUSTRALIA

	28 November (Mon)	29 November (Tue)	30 November (Wed)	1 December (Thu)	2 December (Fri)	3 December (Sat)	4 December (Sun)
08:40-10:10		WUR3) (Steel) [W4,#420 Meeting Room 1] Prof.Ko-ichiro Chno: Prof. Masaki Tanaka 9:00-10:30		WLR30 (Naval Architecture and Ocean Engineering) [W4,#420 Meeting Room 1] Prof. Koji Goloh	Market -		
10:30-12:00	Opening Ceremony 11:00-11:30 [Nakayama Hail,Jonathan KS Choi Cutural Centre of Japan] Lunch Time	LYC) (Steel) Prof. Masaki Tanaka / Prof. Ko-Ichiro Ohno 10:38-12:40		WLR20 (Earth Resources Engineering) [W4,#420 Meeting Room 1] Associate Professor, Takashi Sasaoka			
12:00-13:00	Lunch Time 11:45-12:45 [Nakayama Hail Jonathan KS Choi Cultural Centre of Japan]	Lunch Time	Factory Tour Lunch Time NIPPON STEEL CORPORATION 10:08-12:00 Hibikinada area demonstration field Support: Kitatyusiku Power Co., Ltd. 14:00-14:15 Japanese Industries	Lunch Time	Factory Tour Pukuoka City Chu-bu sewage treatment centor & Hydrogen Station 10:04-12:00 HyTReC 15:04-17:00	Free lime	Free time
13:00-14:30	Plenary Lecture 13:15-14:15 «Mr. Trevor Holloway» Australian Consul-General in Osaka [Multipurpose Hall, Guest House]	WLR2) (OPERA) Prof. Crihaya Adachi [Room: Coli Seminar Room No.332] 13:38-15:89		Japanese Industries (1)			
14:50-16:20	Orientation 14:30-14:45 [Multipurpose Hall, Guest House] Campus bour with KU students 14:45-16:20	LT (2) (OPERA) Prof. Chinaya Adachi 15:08-16:00		(W4,9420 Meeting Room 1] Prof. Masamichi Koluso	1.0038-32.79		
16:40-18:10	[Multipurpose Hall, Guest House] Meeting with the KU buddy [W4, Information Study Room 1] 16:49-18:10						

	5 December (Mon)	6 December (Tue)	7 December (Wed)	8 December (Thu)	9 December (Fri)	10 December (Sat)	11 December (Sun)
08:40-10:10	Japanese industries @		WLRI® (Robotics) [W3,#415 Meeting Roem 2] Prof. Kazuo: Kigachi	JBCTD [W4,9420 Meeting Room 1] Prof. Natalie Kanomi	WLR0F (Research institute of Advanced Electric Propulsion Aiccrafts) [W2,4617,Seminar room] ProCHirosh Miyazaki Asses, Prof. Andreas Themelie		/
10:30-12:00	[W4,#420 Meeting Hoom 1] Prof. Schröder Martin		LT (8) (Robolics) Prof. Kazuo Kiguchi 10:36-11:30	WLR(2) (Ultramicroscopy Research Center) [W4,#420 Meeting Room 1] Prof. Kazuhiro Yasuda	LT (§) (Research Institute of Advanced Electric Propulsion Aincrafts) Prof. Hinoshi Myazaki Assoc. Prof. Andreas Themeis		
12:00-13:00	Lunch Time	Factory Tour	Lunch Time	Lunch Time	Lunch Time		/
13:00-14:30	WLR(5) (I2CNER) (I2CNER Conference Room 217-218) Assoc. Prof. Aleksander Staykov 13:39-15:09	Kyushu Electric Power Co., Inc. 10:00-12:00 Namura Shipbuilding Co., Ltd.	LT(5) (Wind Tunnel) Associate Professor, Hideaki Ogawa 13:06-13:30	LTE (Hydrogen Station HY30) 13:30-14:30	18C2) [W4,4420 Meeting Room 1] Prof. Natalie Konemi	Free time Transport to Fukuoka airport	
14:50-16:20	LT3 (I2CNER) Assoc. Prof. Aleksandar Staykov 15:00-15:45	14:30-16:30		LT (2) (Ultramicroscopy Research Center) Prof. Kazuhiro Yasuda			
16:40-18:10	Tea Ceremony club ∦Tentative			Caligraphy dub (Extracumoular Activities Facility II Japanese-style room) 17:00-18:00	UQ-KU Workshop & Closing Ceremony 17:00-18:20 [Shikihal Lecture Room 2] Parewell Party 18:20-20:00 [Int-ho Restauran]		/

	ERC : Engineering Course			
WLR: World-leading Research Hydrogen, Wind, Nuclear Energy	LT: Lab Tour	Japanese Industries	JBC: Japanese Business Communication	Plenary Lecture



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Kyushu University A leading national research and education institution since 1911. Located on Kyushu Island, historically Japan's gateway to Asia.



https://www.youtube.com/watch?time_continue=148&v=6V8lb77rp8s

Engineering Education at Kyushu University





5200 5.0kV x30.0k

Buddy system at Kyushu University





Kyushu University Shodo club





Kyushu University Tea Ceremony Club



World-leading Research OPERA



Prof. Chihaya Adachi

World-leading Research The Ultramicroscopy Research Center



Prof. Kazuhiro Yasuda



World-leading Research I2CNER



Prof. Stephen M. Lyth

World-leading Research Recent study on the Space Transportation System



Prof. Hideaki Ogawa





ル州大学 KYUSHU



Mr Jackson Geritz (UQ Racing Team) with Hydrogen

HyTReC (The Hydrogen Testing and Research Center)

An ideal launch pad into the hydrogen energy sector

The Hydrogen Energy Test and Research Center, HyTReC, offers cutting-edge hydrogen testing facilities for scientific research, prototyping, and full product testing. Established under the auspices of Fukuoka Prefecture, HyTReC is an independent non-profit organization that supports new hydrogen energy businesses and serves as a launch pad for hydrogen technologies and products they develop. Hydrogen system components such as valves, sensors, hoses, and cylinders in vehicular or stationary applications including hydrogen stations can be tested and qualified at HyTReC for R&D and commercialization.

HyTReC's programs

https://www.hytrec.jp/pdf/hytrecEnglish.pdf

HyTReC (The Hydrogen Testing and Research Center)



https://www.hytrec.jp/pdf/hytrecEnglish.pdf

Genkai Nuclear Power Station (Genkai Energy Park)



https://www.kyuden.co.jp/english_index.html

Genkai Nuclear Power Station (Genkai Energy Park)

https://www.kyuden.co.jp/english_index.html



Genkai Nuclear Power Station (Genkai Energy Park)

https://www.kyuden.co.jp/english_index.html



Namura Shipbuilding Co.



https://www.namura.co.jp/en/index.html



https://www.namura.co.jp/en/index.html

Namura Shipbuilding Co.



https://www.namura.co.jp/en/index.html





Industries in North Kyushu Island





Becoming the Best Steelmaker with World-Leading Capabilities

NSSMC has adopted a new medium-term business plan, covering fiscal 2018 to 2020. By improving the company's "technology," "cost," and "being global" characteristics, NSSMC is determined to prevail in the increasingly competitive market. The company has every intention of becoming the unrivaled Best Steelmaker.



NSSMC and Nisshin Steel's Joint Statement







		Chronology of Yawata Works
Visit by Marquis Ito (Hirofumi) in 1900	1896	Government announced decision to build iron and steel works in Yawata (March 29)
AND	1897	A Yawata Steel Works office was opened in Yahata Village, Onga-gun,
A LANK		Fukuoka Prefecture. (June 1)
	1901	The state-owned Yawala Sleel Works began operation.
		Higashida blast furnace was blown in. (Feb. 5)
		Operation of a rail & shape mill started. (Nov. 16)
		The start ceremony of operation was held. (Nov. 18)
THE STATE	1930	Kukioka blast furnace was blown in. (June 17)
	1934	Japan Iron & Steel Co., Ltd was founded due to
		consolidation of iron & steel companies
		(six companies including Yawata Steel Works). (Feb. 1)
	1950	Japan Iron & Steel Co., Ltd was divided into four companies by the Law for the
		Elimination of Excessive Concentrations of Economic Power; Yawata Iron &
		Steel Co., Ltd. was formed. (April 1)
	1959	Tobala balst furnace was blown in. (Sept. 1)
	1970	Nippon Steel Corporation was formed. (March 31)
	1988	Shift to the new production system
		(One-blast furnace operation, receipt of semi-finished products lotted out, etc.)
	1998	No. 4 blast furnace began operation in place of No. 1.
		(No. 1 blast furnace closed.)
	2002	Waste Plastics Recycling Facility began operation. (April 1)
	2003	Integration of stainless steel business with Sumitomo Metal Industries
		(launching of Nippon Steel & Sumikin Stainless Steel Corporation (NSSC))
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Tobata area Site area Approx. 7,025,364 m ² (1,736 ac.)
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Processes up to Completion of Products





Receipt of raw materials



What are needed to produce or	ne ton of iron?
Iron ore	
Coke	0.5 ton
Limestone	0.1 ton
Others	
Total	

Iron usage in various structures/p	products
Tomei Expressway	550,000 tons
New Tokyo International Airport	400,000 tons
Tokyo Sky Tree	40,000 tons
Kanmon Bridge	30,000 tons
Wakato Bridge	28,000 tons
Tokyo Dome	2,600 tons
Automobile	900 kg
Refrigerator	25 kg

- Number of employees (as of March 2016) Yawata Works...... 4,200 people
- Size of Yawata Works Equivalent to 237 times the Tokyo Dome Equivalent to 158 times the Fukuoka Yafuoku! Dome

BUSH LIFE by HIROSHI OKANO

THE STORY OF THE DISCOVERY OF THE HARD COKING COAL AT MOURA, CENTRL QUEENSLAND AUSTRALIA.





BUSH LIFE by HIROSHI OKANO

THE STORY OF THE DISCOVERY OF THE HARD COKING COAL AT MOURA. CENTRL QUEENSLAND AUSTRALIA.



Frederick William Whitehouse



F.W. Whitehouse, Morotai, 1945

BornDecember 20, 1900
Ipswich, Queensland, AustraliaDiedMarch 22, 1973 (aged 72)NationalityAustralianAlma materIpswich Grammar School,
University of Queensland, St
John's College, University of
CambridgeAwardsWalter Burfitt prize and medal
Scientific careerFieldsGeologist, Naturalist

Frederick Whitehouse attended Ipswich Grammar School, and went on to study at the University of Queensland. He graduated with a B.Sc., with firstclass Honours in geology and mineralogy from the University of Queensland in 1922, and a government gold medal for outstanding merit. He and fellow student **Dorothy Hill**, had collected many fossils during their studies at UQ, which had advanced their individual and shared research in the field.

Y

D

Whitehouse was Associate Professor of Geology, University of Queensland (1949-1955). Whitehouse resigned from the University in 1955. He continued to work as a geological consultant for many oil companies from 1955, and was president of the Anthropological Society of Queensland from 1972 to 1973.

Whitehouse was a close friend of Dr James O'Neil
Mayne (1861-1939), who with his sister Mary
Emelia Mayne purchased land in St Lucia in 1926,
which was to become the new site of the University – of Queensland.



モウラ炭鉱開坑時(1961年4月)
(DW)-(DW)ドウソン・ハイウェイ (W)ワードルの家
(WA)現在ここに選炭工場あり (MT.W)ワイズマン山
(B)この辺一帯はビショップの所有の牧場で羊が群れていた。

Moura Mine at the begining (Apr., 1961)

- (DW) = (DW) Dawson Highway (W) Mr. Wardle's house
- (WA) Washery at present (MT. W) Mt. Wiseman
- (B) Around here was the meadow of Mr. Bishop's property and sheep were grazing here once.



世界最大のDragline (石炭の被覆岩石を振りとる機械)Marien 8900 型 車量 6000 とtucket 容量 100⁴、一面に約200トンの岩石を振りとる。 (1) booket (2) 東用車 (3)人物 一 江底宏一部氏

The largest dragline in the world. Narion Model 8900, with 6,000 tune weight, 130 cubic yds, bucket and 18,000 HP. (0) Bucket (C) Car (E) Nr. Köichiro Ejiri



モウク保証全景 (1)選択工場 (2)ドラマグライン (3)発敏のための罪孔機 (耳)-(D)Daween Firehway

A bird's eye view of Noura Name. (1) Washery (2) Dragline (3) Drilling machine for the blast holes (8) = (D) Dawson Highway (N) = (3) Meridional



Coal production from Moura mine

Exploration and Exploitation of Hard Coking Coal in Kianga-Moura Field,

Central Queensland, Australia.

by

Hideo KIKUCHI, Masatoshi TSUTSUMI, Hiroshi OKANO, Tadashi SAKAMOTO

and Atsuo AIHARA

(Abstract)

Owing to a very limited amount of hard coking coal production in Japan, Japane been constantly seeking nearer and adequate supply source for that kind of coals They have been producing hard cokes by blending domestic soft coking coals with which American coals were dominant until 1955 or so.

In order to fulfill these demands and upon request of the Mitsui & Co., Ltd., attention and made studies of the Kianga-Moura Field in Central Queensland, Austr first field survey from January to April, 1959, we gained the followinge knowledge v conclusion as mentioned below.

(1) In Baralaba, the northern extremity of this field, occurence of anthracite ha 1889 and since then the mines were opened. Many prospecting works were carried geological features of coal seams in and around the area. The results revealed that anthracite or anthracite containing 10% or less volatile matter, and that the stru contorted with NW-SE faults and folds.

(2) In Kianga, southern sector of the field, the Thiess Bros. (Qld.) Pty., Ltd., seam in box-cut after prospecting by drillings. Coal is soft coking coal with 34 matter. The coal seam has a gentle westward dip of 6-8 degrees.

(3) Judging from the geological features of the above two areas, the coal seams to occur in the same horizon or nearly in the same horizon.

(4) The difference in coal quality between Baralaba and Kianga is thought to be the tectonic movement by which the complicated structure of the Baralaba area was

(5) The above-mentioned geological assumption leads to a conclusion that media coal with a possibility of hard coking coal, may be concealed underneath the vast u between Baralaba and Kianga, covering a distance of 60 km.

From the said point of view, the second prospecting work was commenced in Jur for hard coking coal required by the Japanese Steel Mills, with the cooperation a

鉱山地質,15(73),234~244,1965 revealed that our geological conjecture was right,

THE INVEDORTY Kouzan Chishitsu. 15 (1965) 234-244. . BOWEN BASIN ANGA-MOURA FIELD BRISBANE NEW SOUTHWA

SYDNEY BASIN

500 KM

Regional Variation in Rank of Coal in the Great Syncline Coalfield, Queensland, Australia

> by Hiroshi Okano and Atsuo Aihara (Mitsui Mining Company)

SYNOPSIS :- A regional variation of coal quality was recognized within the cour of writers' 1959~1960 prospecting work for hard coking Coal at Kianga-Moura area in Great Syncline Coalfield (Bowen Basin), and some upper Bowen coals in the central pa of the basin are delt with.

The higher rank (higher C content) coals are protted on the part of lower valu in a coal band of the H/C versus O/Cdiagram (Fig. 4) reproduced from analitical data of localities (tab. 1). Distances between coal localities and western limit line of "Dawson Tectonic Zone," a striking folding and faulting zone in the south eastern

1. Collinsville

2. Blackwater 3. Dingo

4. Banana

of the basin, connecting Banana and Bluff via Barala the tectonic zone and regional rank variation is recog higher the rank. From a geological view point of min the central part of the basin with local exception in effect to the rank variation is negligible in general. of burial) that has important concern to the rank var limited at the base of Clematis Sandstone according Taurus, Baralaba and Moura do not correspond with t depositional facies of coal seams and thickness and na that the coals near or in the zone were buried in deen anomalous case, and the thickness of burial might ha the regional variation of rank.

As a conclusion, most important role had been of the basin from the begining and migration of centre of of the Dawson tectonic movement; the increase of deeper burial of coal seams and added heat and stres pressure that occoured during the formation of the m would be effective functions in the course of coalificat







Yamakasa festival on 1st-15th July



