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## 香港風電場: 假環保·真搵銀


08-12-2013  
香港灣仔溫莎公爵社會服務大樓  
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香港風電場: 須三思!  
Hong Kong Wind Farm:  
Reconsidered  
吳振揚 (Young Ng PhD, MSc, MH)  
香港地貌岩石保育協會主席  
香港地質公園專責小組成員

2

## 大綱

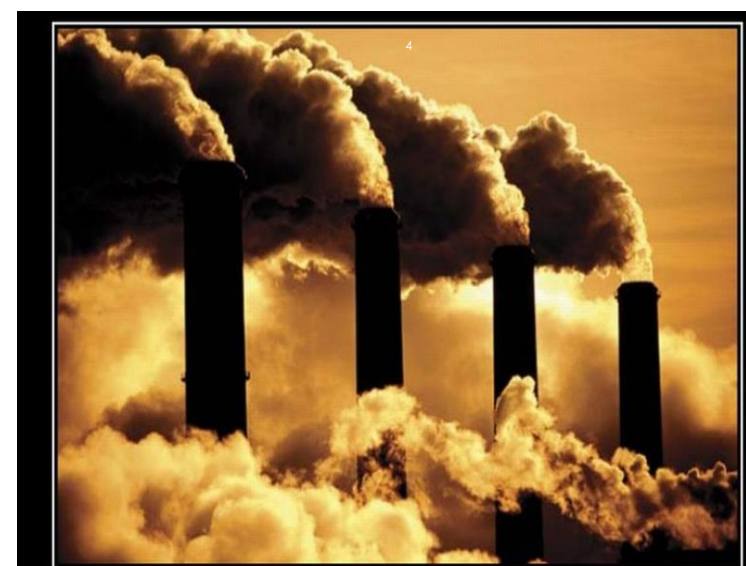
- 全球暖化/氣候變化疑點
- 香港發展風電之成本效益
- 總結及如何面對未來



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## 全球暖化/氣候變化疑點

- 停止/減慢全球暖化/氣候變化為發展風電的基礎
- 全球暖化/氣候變化疑點重重
- 過去16/17年人口雖然大增但地球溫度沒有上升過的事實
- 影響地球溫度原因很多·不限於人為活動
- 缺乏理性分析·被利用為爭取經濟及政治利益理由
- 非理性的跟風 + 人類自大狂 = 完全忽略大自然因素



A collage of images related to global warming. On the left, a green ice cube with a map of the world on it is melting into a puddle of water. Above it, the text "GLOBAL WARMING" is written in a stylized font. In the center, a polar bear is shown standing on a small piece of ice in the ocean. On the right, the text "Stop Global Warming" is written in large white letters, with "(not everyone can swim)" underneath. At the bottom, the Chinese text "目前地球真的暖化?" is displayed.

7

A slide with a blue background. The title "科學的原則及態度....." is written in yellow. Below the title is a list of three bullet points in white text. To the right of the text is an illustration of a scientist with wild white hair, wearing a white lab coat and glasses, holding a glowing green orb. The scientist has a surprised or excited expression. The background of the illustration shows laboratory glassware like flasks and test tubes.

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### 科學的原則及態度.....

- 好奇、尋根究底、疑惑、求真之心是真正科學家應有的態度
- 科學結論不一定是永恆的。新科技、新知識、可能改變原先舊理論
- 真正科學需客觀、無私、經得起考驗、不怕被挑戰、不怕被質疑

**NATIONAL GEOGRAPHIC NEWS**  
REPORTING YOUR WORLD DAILY  
Thursday, October 28, 2010

MAIN | ANIMAL NEWS | ANCIENT WORLD | ENVIRONMENT NEWS | CULTURES NEWS | SPACE/TECH NEWS | WEIRD | PHOTOS | VIDEO

**Arctic Sea Ice Gone in Summer Within Five Years?**  
Seth Eborstein in Washington  
Associated Press

U.S. | Sport | TV&Showbiz | Female | Health | **Science** | Money | RightMinds

Features | Gadgets Gifts and Toys Store

**UN report that said Himalayan glaciers would melt within 25 years was all hot air**  
By DAVID DERBYSHIRE  
UPDATED: 09:59 GMT, 18 January 2010

Comments (326) | Share | Tweet | Like

Claims by the world's leading climate scientists that most of the Himalayan glaciers will vanish within 25 years were last night exposed as nonsense.

The alarmist warning appeared two years ago in a highly influential report by the United Nations Intergovernmental Panel on Climate Change.

At the time the IPCC insisted that its report contained the latest and most detailed evidence yet of the risks of man-made climate change to the planet.

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**Over 4.5 Billion people could die from Global Warming-related causes by 2012**

Hydrate hypothesis illuminates growing climate change alarm  
Compiled by John Stokes

A recent scientific theory called the "hydrate hypothesis" says that historical global warming cycles have been caused by a feedback loop, where melting permafrost methane clathrates (also known as "hydrates") spur local global warming, leading to further melting of clathrates and bacterial growth.

In other words, like western Siberia, the 400 billion tons of methane in permafrost hydrate will gradually melt, and the released methane will speed the melting. The effect of even a couple of billion tons of methane being emitted into the atmosphere each year would be catastrophic.

The "hydrate hypothesis" (if validated) spells the rapid onset of runaway catastrophic global warming. In fact, you should remember this moment when you learned about this feedback loop: it is an existential turning point in your life.

Story sponsored in 2007 - damaged  
Caused by ice melting - releasing of methane gas stored in ice  
Source: <http://www.scoop.international.com/news/2007/12/08/01211.htm>

**NATIONAL GEOGRAPHIC NEWS**  
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**Arctic Sea Ice Gone in Summer Within Five Years?**  
Seth Eborstein in Washington  
Associated Press  
December 12, 2007

ADVERTISMENT

**ONE MAN, ONE RAZOR. 5 WEEKS AROUND THE WORLD.**  
TO DISCOVER THE JOURNEY  
Gillette

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SPACE PHOTOS THIS WEEK: Tiny Galaxy, Sun's Iron, More

SPACE PHOTOS THIS WEEK: Tiny Galaxy, Sun's Iron, More

SPACE PHOTOS THIS WEEK: Tiny Galaxy, Sun's Iron, More

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2013年 12月8日 北極冰塊仍在

DATA: NOAA, U.S. Navy, ESA, 03/2000  
© 2003 EarthSat.com  
Image by NASA

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## 疑點

- 地球正在暖化，生物全無適應能力，大部份生物包括人類正步向滅亡？
- 地球氣候從未轉變過？地球從未暖化過？
- 人類乃氣候轉變及全球暖化之罪魁禍首？
- 二氧化碳 CO<sub>2</sub>，為全球暖化的元兇？
- 減低碳排放就可以減慢或停止全球暖化，甚至停止/減慢氣候轉變？
- 目前環保政策，包括綠色能源政策，可以有效解決氣候轉變及全球暖化的問題？

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## 值得思考的問題

- 今天的氣候變化是否前所未有？
- 20世紀地球溫度變化是否異於以往正常差異？
- 全球暖化是否已達危險程度？
- 目前氣候變化及全球暖化證據是否出了問題？

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## 認識CO<sub>2</sub>

- 不是污染物 (pollutant)
- 是植物必須的食物
- 氣溫上升，空氣中CO<sub>2</sub> 水平會隨着上升
- CO<sub>2</sub> 水平上升，氣溫不一定會上升
- 地球的CO<sub>2</sub>排放，大部份來自大自然
- 減低人類活動排放的 CO<sub>2</sub>無助降低全球氣溫，阻止極端氣候發生及停止氣候變化

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U.S. ENVIRONMENTAL PROTECTION AGENCY

**Technology Transfer Network  
Air Toxics Web Site**

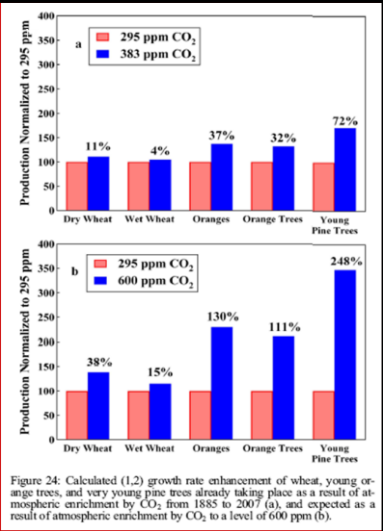
Contact Us Search: All EPA This Area You are here: [EPA Home](#) > [Air & Radiation](#) > [The Web - Technology Transfer Network](#) > [Air Toxics Web Site](#) > Original list of hazardous air pollutants

**The original list of hazardous air pollutants as follows:**

CAS Number	Chemical Name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107038	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	n-Aminobiphenyl
62533	Aniline
90040	n-Asioline
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92879	Benzidine
98277	Benzotrifluoride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
942841	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
105602	Caproactam(See Modification)
133062	Captan
63252	Carbaryl
75130	Carbon disulfide
56235	Carbon tetrachloride
463381	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782305	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone

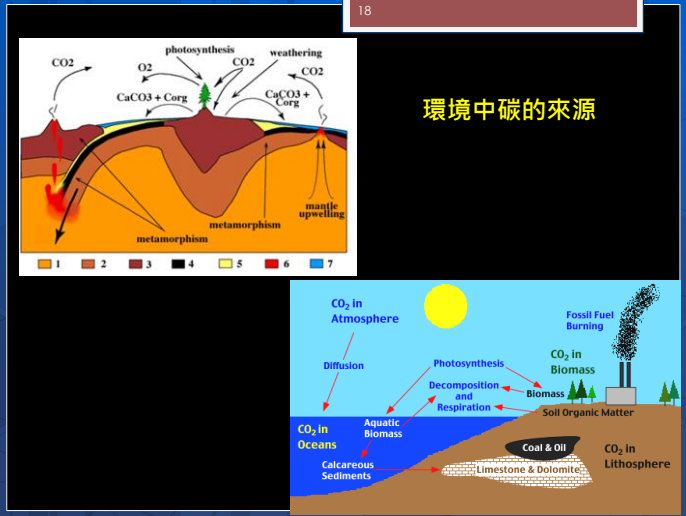
### 植物的養份

當 CO<sub>2</sub> 增加一倍，小麥收成增長 60%，豆類 62%，生果 33%，蔬菜 51%。



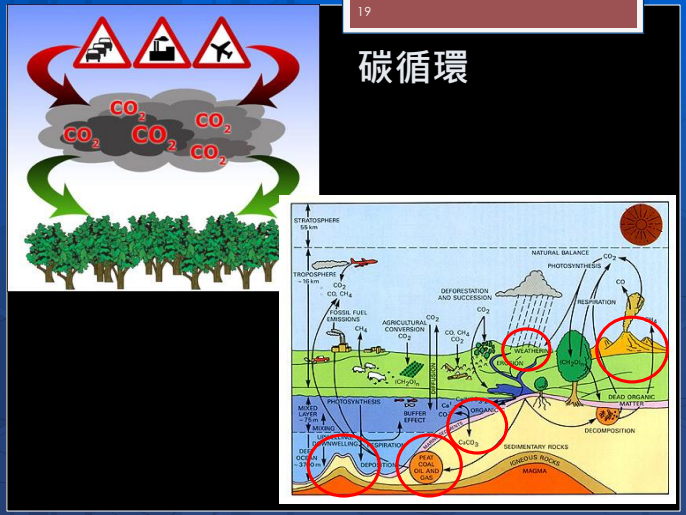
18

### 環境中碳的來源



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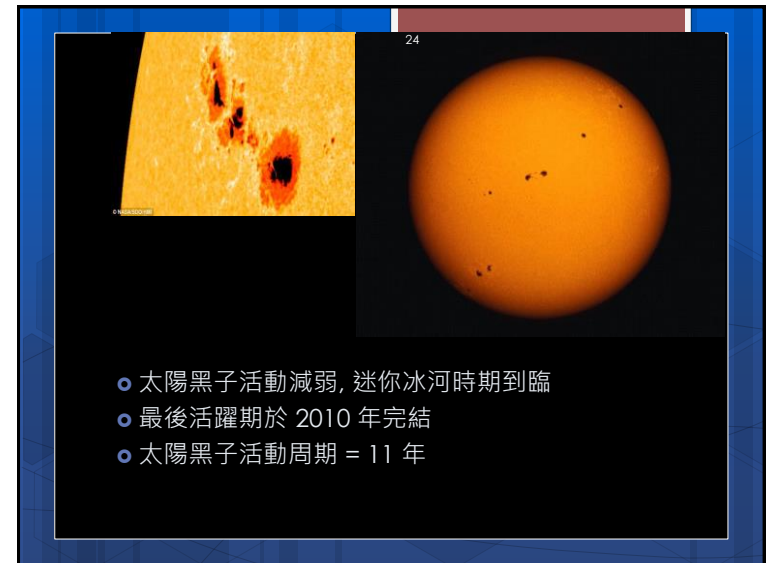
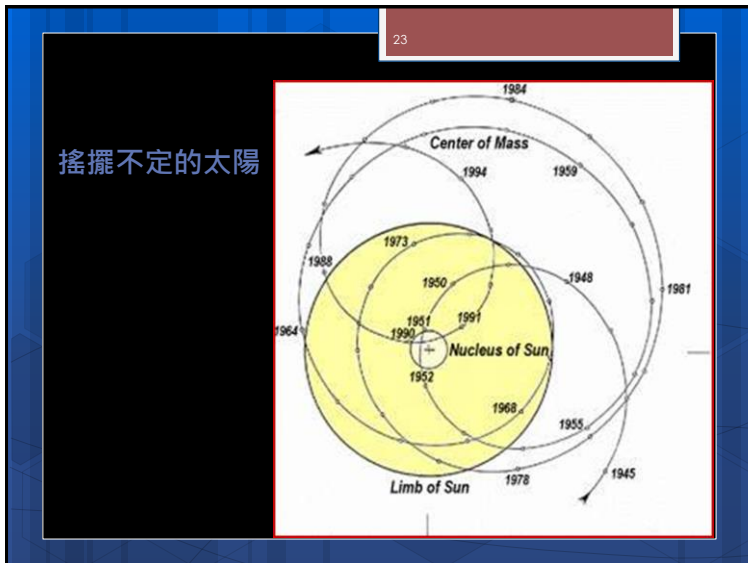
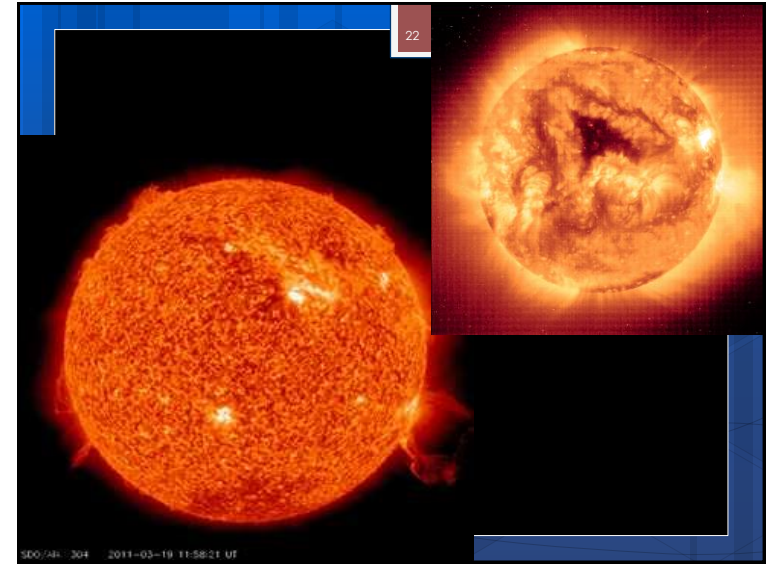
### 碳循環

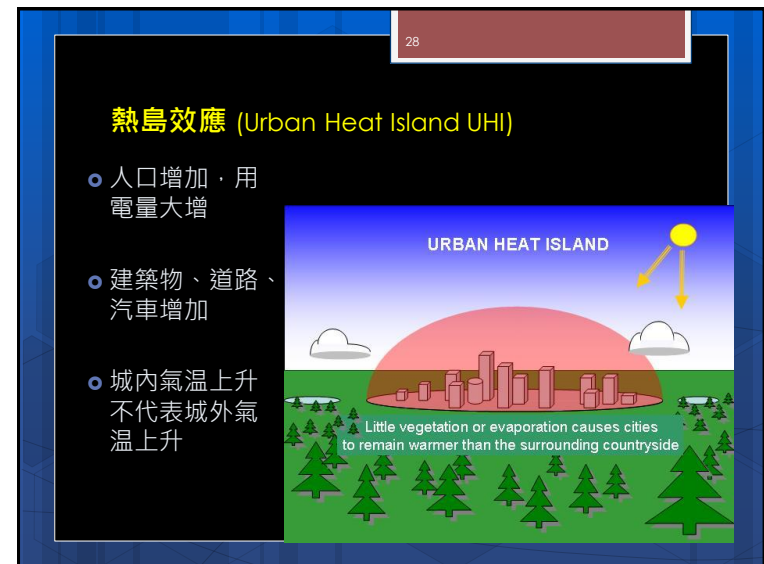
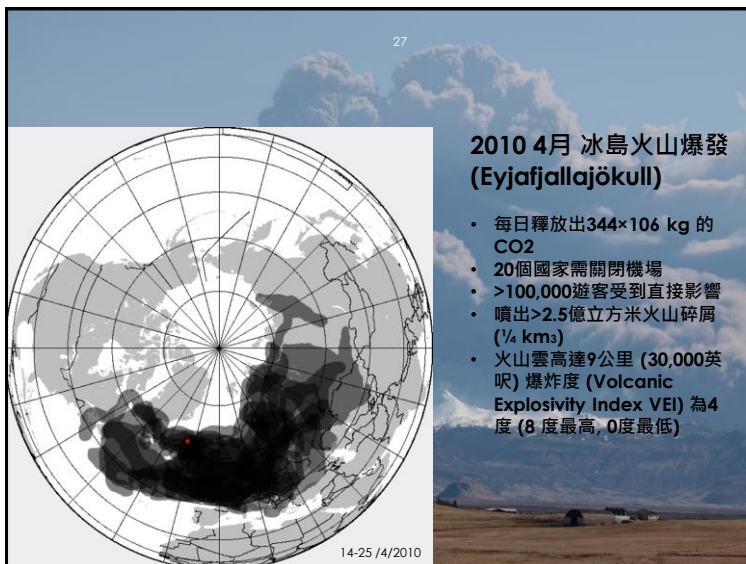
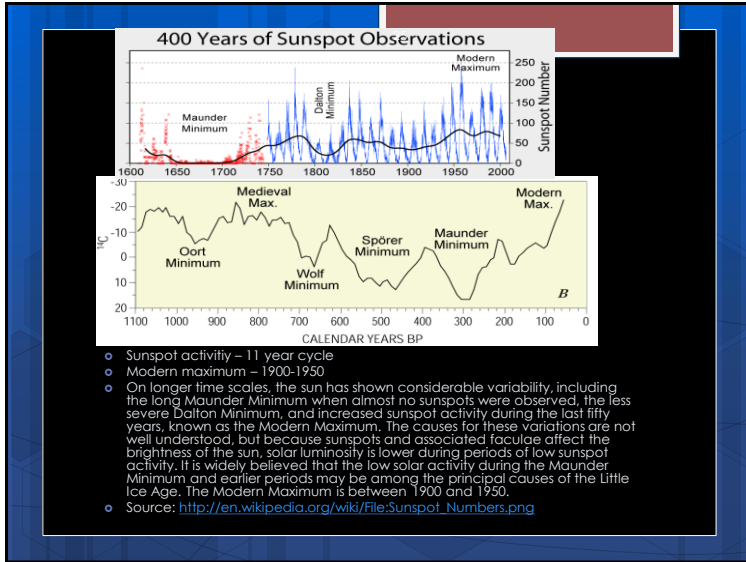


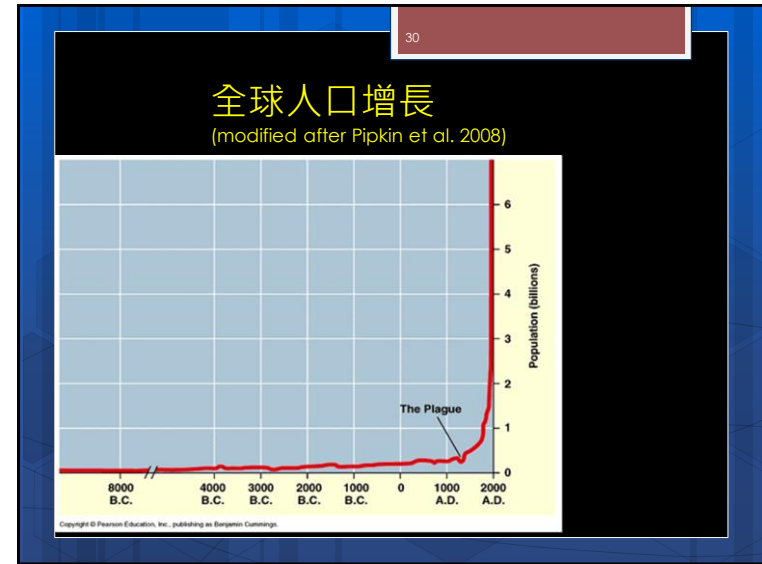
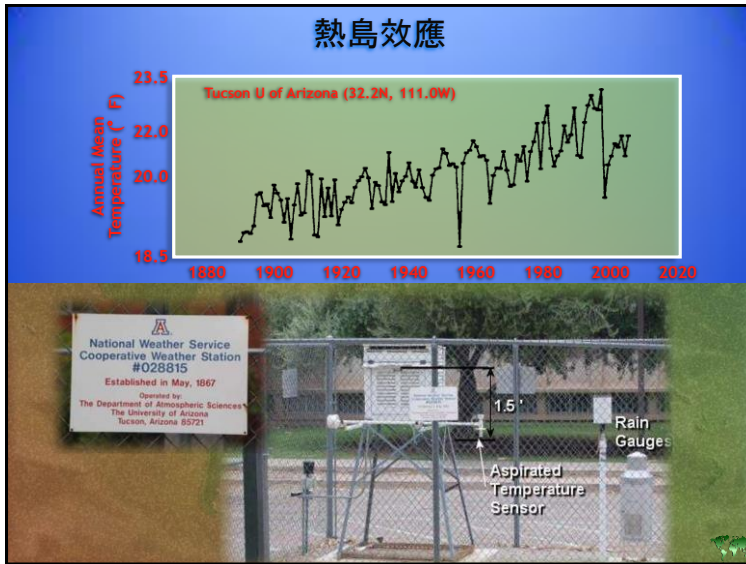
20

### CO<sub>2</sub> 之外.....

- 太陽/宇宙活動
- 地殼移動
- 火山爆發
- 水蒸氣/水循環
- 人口增長
- 熱島效應
- 氣溫測量站的位置

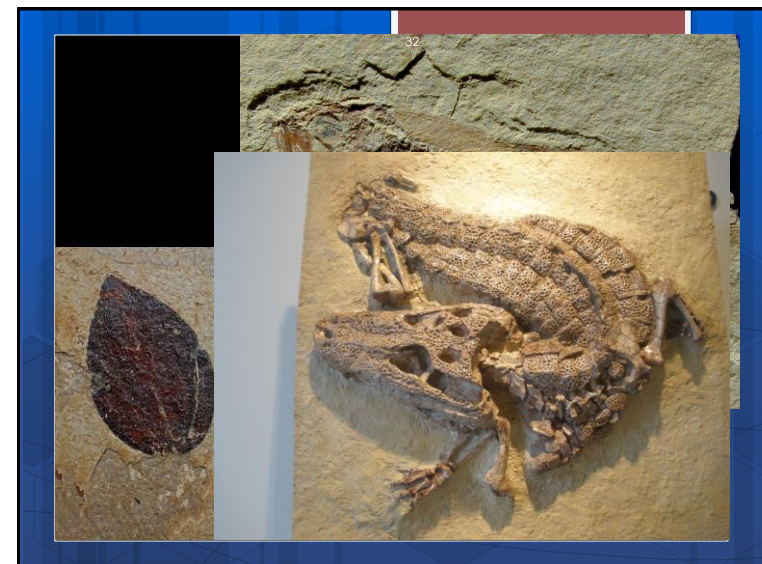




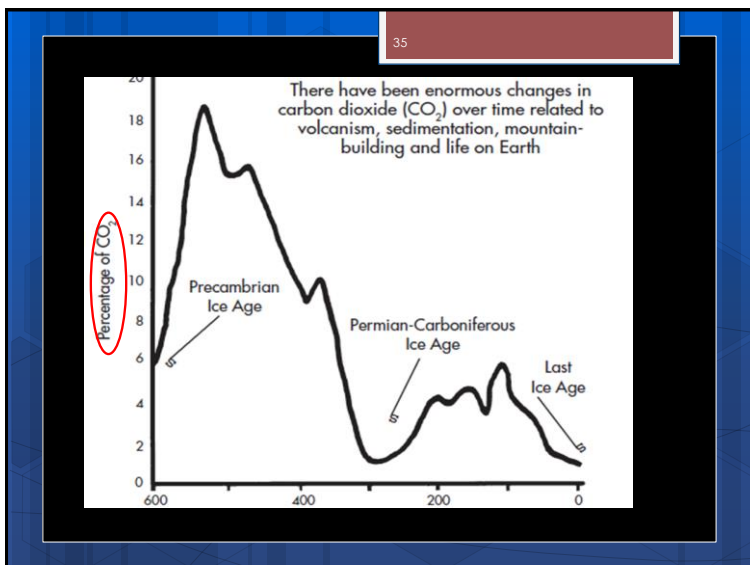
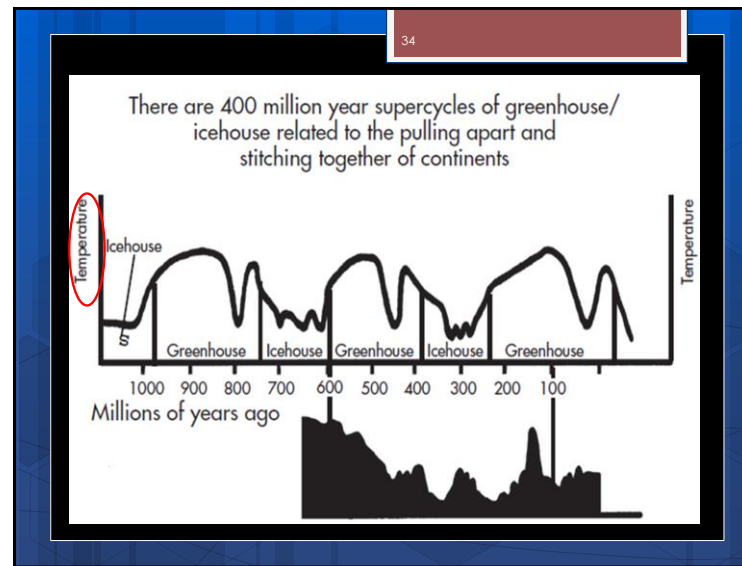
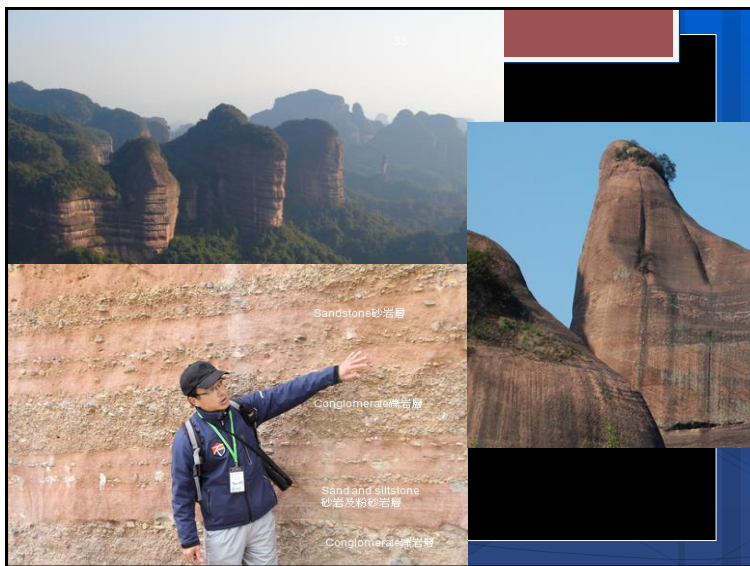


### 一個被遺忘的重要理論

- Uniformitarianism (均變理論)
- The 'Present is the key to the past'  
(當今問題乃過去問題的線索), James Hutton 1785
- The 'Past is the key to the present'  
(過去問題乃當今問題的線索),  
Charles Lyell's Principles of Geology 1830
- The past & present are the keys to future (過去及當今問題乃將來問題的線索)







Warm/Cold periods	Years before present (bp)
Pleistocene Ice Age	110,000 - 14,700 bp
Bolling	14,700 - 13,900 bp
Older Dryas	13,900 - 13,600 bp
Allerod	13,600 - 12,900 bp
Younger Dryas	12,900 - 11,600 bp
Holocene Warming (a)	11,600 - 8,500 bp
Egyptian Cooling	8,500 - 8000 bp
Holocene Warming (b)	8,000 - 5,600 bp
Akkadian Cooling	5,600 - 3,500 bp
Minoan Warming	3,500 - 3,200 bp
Bronze Age Cooling	3,200 - 2,500 bp
Roman Warming	500BC - 535 AD
Dark Ages	535AD - 900 AD
Medieval Warming	900AD - 1300AD
Little Ice Age	1300AD - 1850AD
Modern Warming	1850AD -

近代地球歷史的冷暖周期

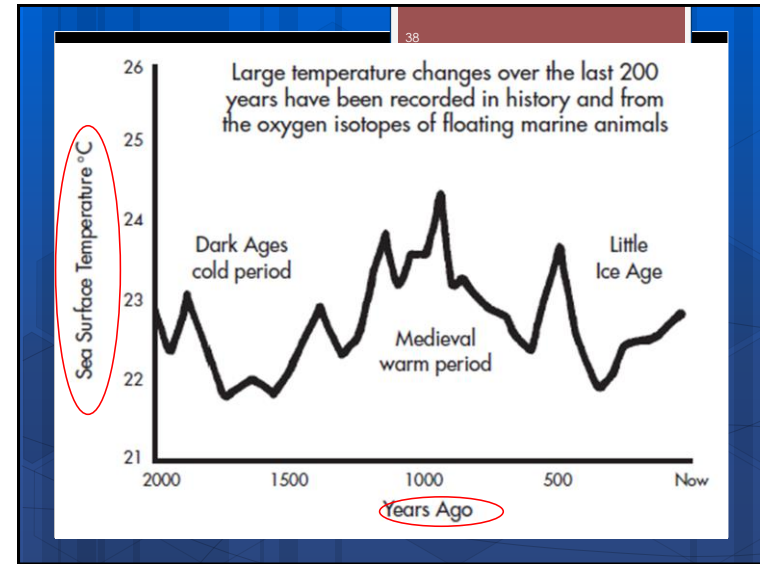
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## 近代地球歷史紀錄:

### 3段溫度異常時期

- 900-1300 AD 中世紀和暖期 Medieval Warming
- 1500-1850 小冰河時期 Little Ice Age
- 100年前至今 工業革命和暖期 Industrial Era



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## IPCC政府間氣候變化專門委員會醜聞 (自2007-09年)

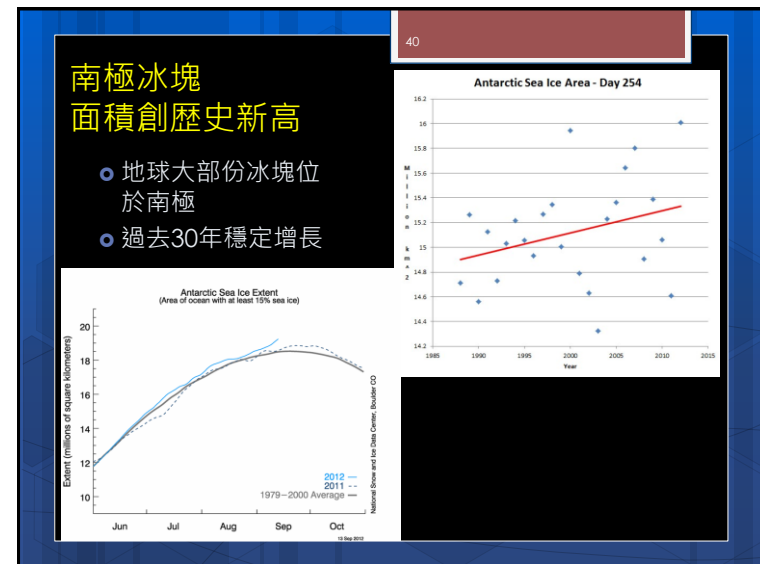
### Intergovernmental Panel on Climate Change

- 曲棍球門 (Hockey Stick) - 內部電郵被盜
- 氣候門 (Climate Gate)- IPCC 灰色文獻
- 冰川門 (Glacier Gate)- IPCC 灰色文獻
- 亞馬遜門 (Amazon Gate)- IPCC 灰色文獻
- 大堡礁門 (Great Barrier Gate)

事件揭露了一些“科學家”操縱有關數據的幕後背景，令人感到震驚

<http://news.sina.com.cn/w/sd/2010-02-03/204319628027.shtml>

Mosher S & Fuller T (2010) Climategate- the crutape letters



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# Temperature

Location, location, location.....

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Marysville (Ca., USA)

Official Thermometer, Marysville California

jonova.s3.amazonaws.com/corruption/climate-corruption.pdf

43

Rome (Italy)

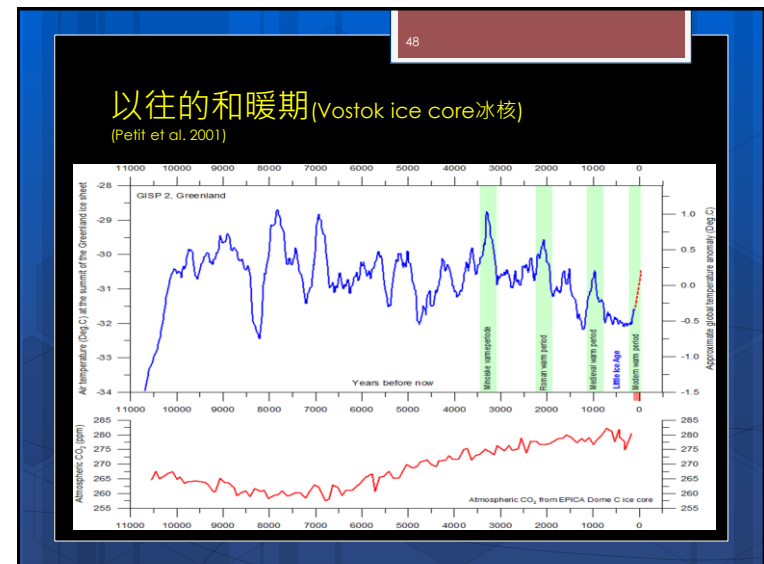
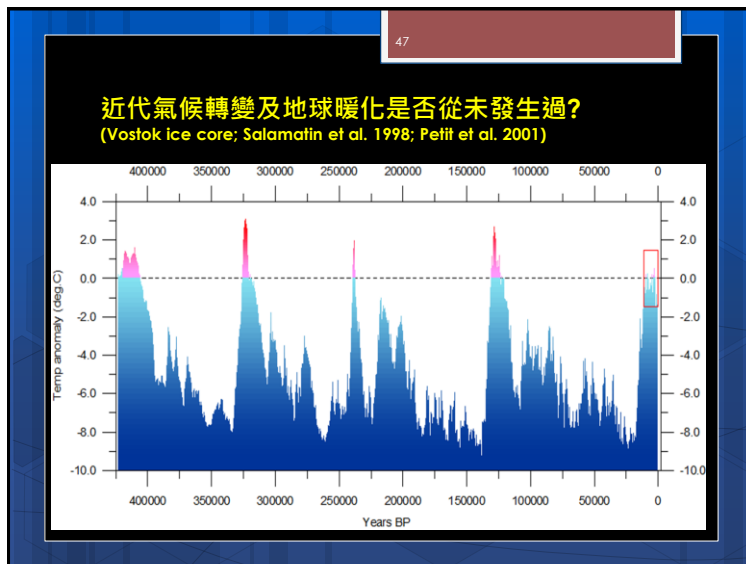
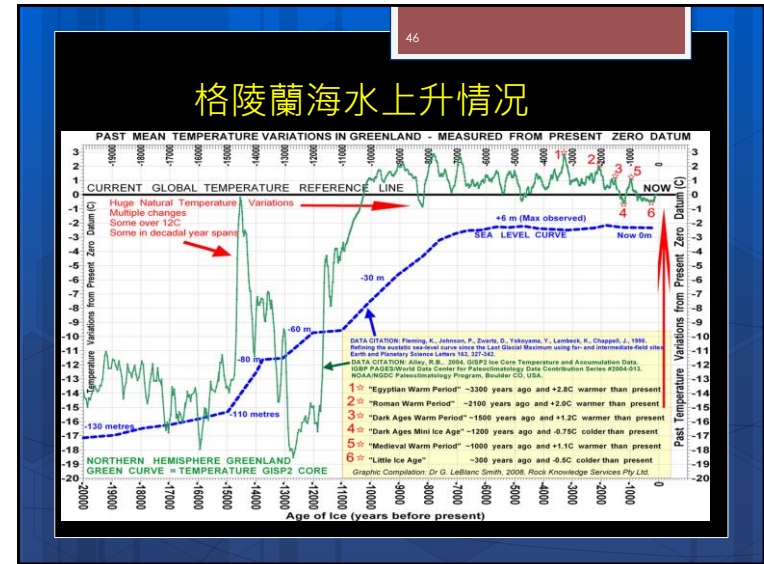
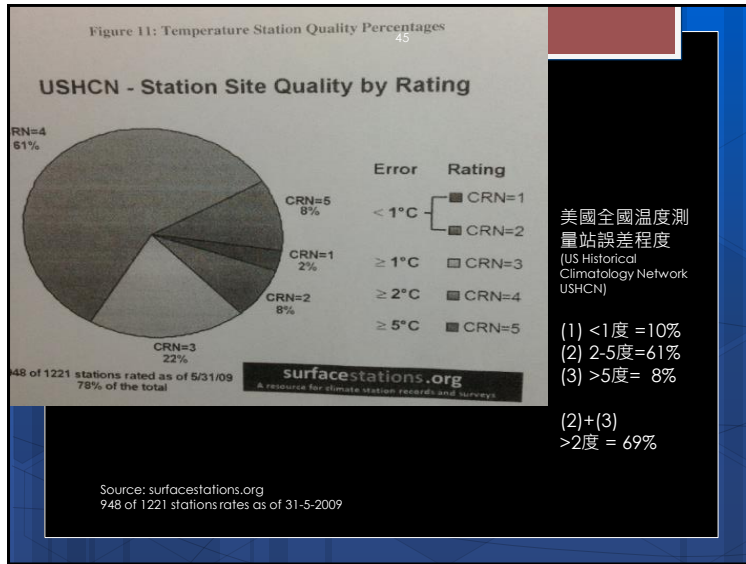
Official Thermometer, Rome Airport

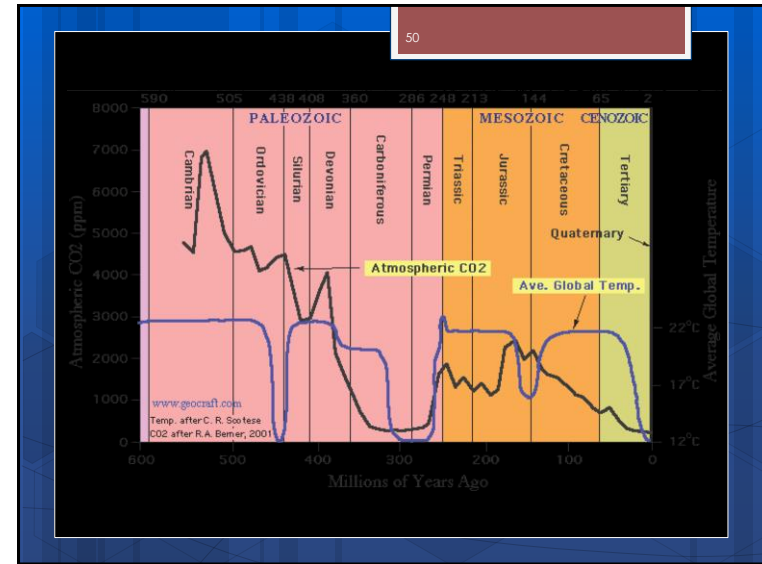
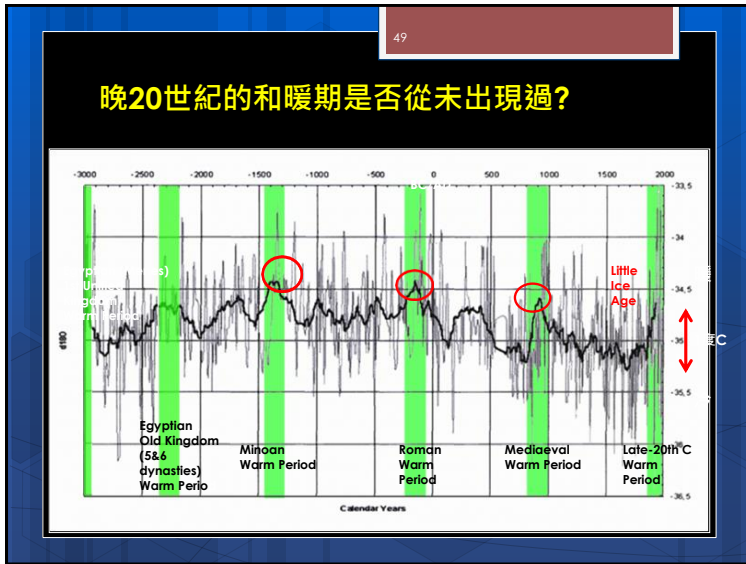
jonova.s3.amazonaws.com/corruption/climate-corruption.pdf

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Sydney Observatory 1874 (60,000 people) and 2009 (4.5 M people)

Official Thermometer, Observatory Hill, Sydney





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### 地球歷史告訴我們什麼?

- 地球不停在變
- 氣候變化是正常
- 人類在地球出現前氣候變化已經存在
- 目前氣候變化的速度與萬、百萬、千萬、甚至億年前無大分別
- 地球 >80% 的時間都比現在潮濕及和暖

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### 注意!

- 小心以世界末日、環保為名，賺取暴利為實，破壞環境之環保及能源項目

## 例：香港西貢東南， 海上風電場計劃

- 所佔面積：16平方公里
- 風車：67台（每台3MW）
- 共200MW - 80,000家庭
- 每枝距離：500m
- 高度：135m
- 每枝直徑：8 m
- 離東果 / 火石洲 4 公里
- 生產 1%全港用电量
- 碳減排全港 1.4%
- 成本 70-100億
- 可用年期：20年？（成疑）



風力發電機 =  
Bird chopper - 雀鳥切割機



## 評估 3E 效益

- ▣ 能源/產電效益 (Energy/Productivity efficiency)
- ▣ 環保效益 (Environmental efficiency)
- ▣ 經濟效益 (Economic efficiency)

## 能原/產電效益

- Loading / capacity factor 產電效益低 (<25%)
- 全世界有約共 150,000支風電塔，祇能供應 全球0.5% 電力來源 (如要達至25%用風來發電，需 7,500,000支風電塔)
- 風電發展已超過20年，產電效益低，技術未有突破
- 低效益 = (1) 技術本身不能有效產電 (2) 技術未成熟 = 非適當時候推出市場

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- 不穩定、間斷性產電: 無風無電、強風停機、太冷停機
- 必須後備電源保持供電穩定
- 兩項風電計劃最多能生產共 1-2%全港用電需要

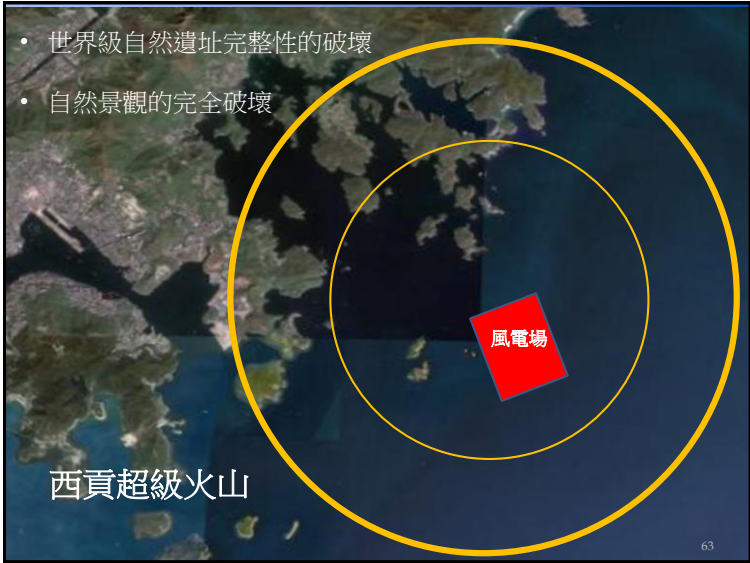
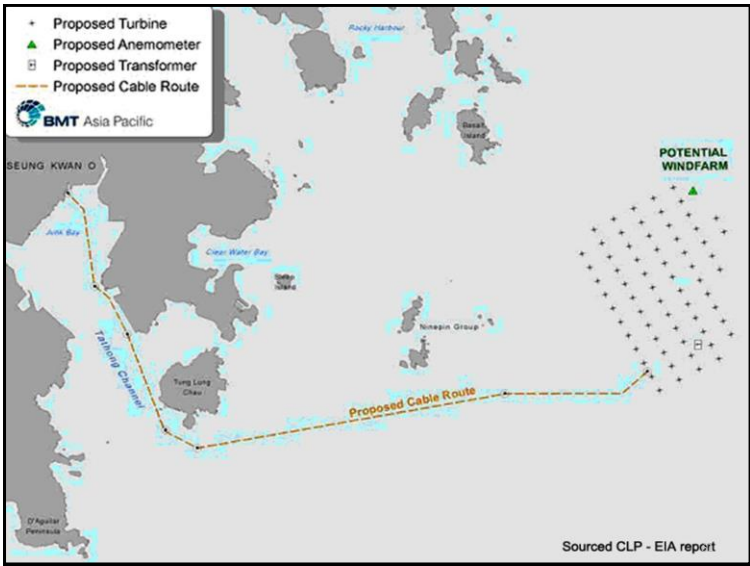
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## 環保效益

- 減二氧化碳真可減溫?
- 減溫就可減慢或停止氣候變化?
- 噪音影響
- 對海洋生物、飛鳥、人類的影響
- 對珍貴自然景觀的影響
- 對世界級自然及地質遺址完整性的破壞
- 製造、興建、維修過程所產生的碳排放考慮
- 後備電源之碳排放考慮

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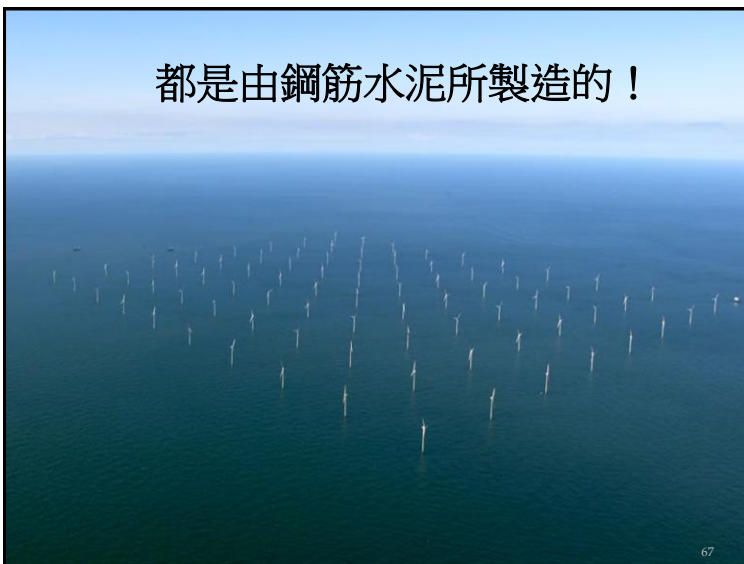
- 世界級自然遺址完整性的破壞
- 自然景觀的完全破壞

### 景觀破壞

- ▣ 1座135米高風力發電塔 = 3座尖沙咀鐘樓
- ▣ 1塊扇葉 = 1座尖沙咀鐘樓
- ▣ 風力發電機是一部超巨型機器長 = 1部雙層巴士

The image shows a comparison of the scale of wind turbine components. On the left, a tall wind turbine tower and a single blade are shown. On the right, three smaller images of the尖沙咀鐘樓 (Tsim Sha Tsui Clock Tower) are stacked vertically, with an equals sign between them, indicating that the tower height is equivalent to three clock towers. Below the bus image, the number '64' is visible.





### 經濟效益

- ▣ 高昂的興建成本
- ▣ 20年的壽命? (成疑)
- ▣ 長期高昂的維修保養費用
- ▣ 風電之生存必須倚賴納稅人或用户大量補貼，運作絕非可持續項目
- ▣ 電費的影響 - 成本、運作及維修
- ▣ 經營困難，製造失業
- ▣ 旅遊業的影響
- ▣ 漁業的影響

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總共有25台風電機組：  
 8台風電機組被攔腰截斷  
 9台機組風葉被折斷  
 剩餘8台機組在外觀上沒有出現損毀現象  
 損壞率達68%，經濟損失1億  
 2003年颱風“杜鵑” 25台機組中13台受損，損壞率達52%

**颱風“天兔”來襲紅海灣風電場**  
 (CCTV 2 : 23/9/2013)

### 3. 總結及未來展望

- 理性客觀分析，提防誇張恐嚇式推銷世界末日論
- 地球氣候變化屬正常自然現象
- 人類學曉適應氣候變化是必要的，不要期望我們可以停止全人類呼吸、牛隻放屁、火山噴發、太陽活動減慢、地球停止轉動
- 節能改變生活習慣，發展其它較有效的新能源
- 慎防以綠色之名綠色能源項目
- 風力發電項目建造及維修費用超昂貴、不可持續。技術沒有突破、低產電量、無力排污、破壞天然環境、以綠色之名，剝削小市民、小企業，肥了政客、商家

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*"Please remain calm: The Earth will heal itself -- Climate is beyond our power to control...Earth doesn't care about governments or their legislation. You can't find much actual global warming in present-day weather observations. Climate change is a matter of geologic time, something that the earth routinely does on its own without asking anyone's permission or explaining itself."*

謝謝!  
Thank You!

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