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Edição 4755 - Notícias de C&T - Serviço da SBPC

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5. EUA lançam maior iniciativa ambientalista do governo Obama
6. Alunos do fundamental e médio serão avaliados em Ciência na Prova Brasil 2013
7. Estudantes de odontologia da UnB paralisam atividades e pedem melhores estruturas
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17. Inpa abre inscrições para o Programa de Capacitação Institucional
18. Livro faz um panorama da revolução digital no ensino
19. Centro global de pesquisas sobre sustentabilidade é lançado no Rio
20. Robô permite presença remota de alunos doentes
21. Bolsa Universidade vai disponibilizar 5,5 mil novas vagas em Manaus
22. Arqueólogos de universidade de SC exploram gruta de Portugal
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25. Ciência Hoje On-line: Os bastidores do crack

Edição 4753 - Notícias de C&T - Serviço da SBPC

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2. Comissão de Ciência, Tecnologia do Senado discute uso de células-tronco na terça
3. IFCS/UFRJ publica nota de repúdio aos atos de violência que fizeram com que centenas de estudantes buscassem refúgio em suas dependências
4. MPF pede suspensão do concurso da Universidade Federal do Maranhão
5. Prouni: número de candidatos a bolsas chega a 192 mil
6. Partido deixou de ser um instrumento de mobilização
7. Duas revoltas e o mesmo propósito: o Rio de hoje e a Guerra do Vintém contra o aumento da passagem
8. O espelho que foge
9. Ciência com fronteiras
10. É hora da educação
11. Uma ou duas coisas que as chamadas ciências sociais e humanas têm a dizer para o Governo Brasileiro e para si próprias
12. Escolas precárias
13. 'Verba para educação não é bem utilizada', diz Fundação Itaú Social
14. Manifestações já ganham espaço nas salas de aula dos colégios paulistanos
15. Professor organiza passeata de alunos pela vizinhança
16. Assunto passa a ser uma das principais apostas para vestibular
17. Diários de viagem de dom Pedro II entram em programa da Unesco
18. Projeto regulamenta clonagem de animais domésticos
19. Pela web, uma revolução na educação
20. Descobertas de planetas semelhantes à Terra reforçam busca por vida alienígena
21. Morre aos 94 anos a matemática Maria Laura Mouzinho Leite
22. Segunda edição da revista 'Vigilância Sanitária em Debate' está on-line
23. Itália se prepara para receber novos bolsistas do Ciência sem Fronteiras
24. 'Os Moocs ajudam a melhorar o ensino tradicional'
25. Plataforma vai muito além do formato videoaula
26. Virou aula
27. Pais de autistas buscam escola para desenvolvimento social dos filhos
28. Cientistas encontram mecanismo que altera coordenação por consumo de cannabis

29. Instituto Federal do Piauí lança edital com 635 vagas em cursos técnicos
30. Com apoio da Fapeam, pesquisa do Instituto Federal do Amazonas desenvolve biscoito anticárie
31. Ciência Hoje On-line: Quem é o Grande Irmão?

AMBIENTE BRASIL

Estados Unidos prometem liderança no combate às mudanças do clima

Depois de anos de inércia, Estados Unidos anunciam plano climático inédito. País quer cortar emissões dos gases estufa, promete investir em energia limpa e buscar meios para proteger a floresta.

Ministério lança cartilhas de prevenção da gripe aviária

O material informa sobre sintomas da doença nas aves. Entre eles o aumento repentino da mortalidade dos animais em um período de 72 horas, e mudanças de comportamento, como "andar cambaleante" e a ave para de comer.

RJ: relação de terrenos contaminados é divulgada pela primeira vez

Instituto detectou substâncias químicas em 160 terrenos no Estado.

Cientistas anunciam genoma mais antigo já decifrado

Uma equipe de pesquisadores conseguiu decifrar o genoma de um cavalo de 700 mil anos, de longe o mais antigo genoma já analisado até agora e um feito que permite contemplar a possibilidade de ler o DNA de fósseis que se pensavam danificados demais para fornecer informações exploráveis.

São Paulo ganha rede de estações de sistemas de navegação por satélite

Construída para fins de pesquisa, GNSS-SP também deve contribuir para melhorar a aplicação da tecnologia em áreas como a agricultura de precisão e previsão do tempo.

Após falha, Nasa atrasa lançamento de sonda para estudar Sol em um dia

Sonda Iris vai ser lançada nesta quinta (27) para estudar a atmosfera solar. Lançamento foi adiado devido à problema de energia em base americana.

Chuvas no Paraná atingem 53 municípios, oito decretaram estado de emergência

De acordo com a Defesa Civil, 60.800 pessoas foram afetadas, sendo que 964 pessoas ficaram desabrigadas. Em Laranjeiras do Sul foram registradas duas mortes.

Maioria dos chimpanzés usados em testes nos EUA vai ser aposentada

Apenas 50 dos 300 chimpanzés de institutos do país ainda serão testados. Decisão começará a ser aplicada nos próximos meses e anos.

Fontes renováveis vão gerar 25% da eletricidade mundial até 2018, diz AIE

Dados foram divulgados pela Agência Internacional de Energia nesta quarta-feira. China e outros países em desenvolvimento vão puxar alta.

Zona morta do Golfo do México pode ter extensão recorde este ano

As zonas mortas, tóxicas para a vida marinha, são geradas pela contaminação excessiva da água com o transporte de nutrientes usados na agricultura. Estas áreas também são influenciadas pelo clima, as chuvas, os ventos e a temperatura.

Fenômenos como El Niño e La Niña não devem ocorrer em 2013, diz OMM

Organização Meteorológica deu parecer a respeito nesta quarta-feira. Sistemas climáticos alteram chuvas em regiões do Pacífico e do Atlântico.

Cataratas do Iguazu são fechadas por causa de inundações no Paraguai

As inundações já afetaram 700 famílias no território paraguaio, divulgou nesta quarta-feira a Secretaria de Emergência Nacional (SEN). A água alcançou as passarelas e os binóculos fixos por onde caminham os turistas, afirmou a imprensa de Ciudad del Este, na tríplice fronteira.

Cientistas batizam nova espécie de mariposa em homenagem ao Sol

'Stenoloba solaris' tem manchas alaranjadas circulares nas asas. Animal foi descoberto em região montanhosa na China.

6 de cada 10 embalagens PET que você consome são recicladas

Em 2012, a reciclagem do PET cresceu 12%, dando vida nova a mais da metade das embalagens consumidas no país. Apesar do crescimento, coleta seletiva ainda é desafio.

Japão é processado no Tribunal de Haia por caça de baleias na Antártica

Austrália defende proibição de caça às baleias no órgão judicial da ONU. Governo japonês é acusado de maquiagem para captura de animais.

Vegetação natural cobre 77% do Pará; pastagem já cobre 15%

A maior parte das áreas preservadas estão nas mesorregiões do Sudoeste Paraense e do Baixo Amazonas Paraense, que representam a metade ocidental do Estado.

Ombro foi 'peça-chave' da evolução humana há 2 milhões de anos

A habilidade de arremessar objetos foi essencial para a evolução do ser humano, pois melhorou sua capacidade e eficiência para a caça, destaca pesquisa da revista Nature. A peça-chave dessa mecânica surgiu há 2 milhões de anos quando o corpo do "Homo erectus" sofreu uma série de mudanças para aumentar a geração de energia destinada ao ombro.

A Amazônia pode mesmo virar cerrado?

Segundo especialistas, a maior floresta tropical é capaz de resistir com bravura às mudanças climáticas. A questão é até quando.

Zoo britânico apresenta raro filhote de leopardo-das-neves

Filhote ainda está em isolamento e não teve seu sexo determinado.

MPA vai licitar áreas destinadas à aquicultura em Goiás e no Rio de Janeiro

No total, são quase 23 hectares de áreas em corpo d'água de domínio da União disponíveis para serem licitados pela modalidade "concorrência/menor lance ou oferta".

Brasil perde 40% da água por ineficiência operacional

Informação é de estudo divulgado nesta quinta-feira pela consultoria GO Associados a pedido da International Finance Corporation (IFC), braço do Banco Mundial.

Cimi aponta crescimento de 237% na violência contra os índios

O levantamento aponta que, em todo o Brasil, foram registradas 60 homicídios contra a população indígena. O número representa nove mortes a mais que as registradas no ano anterior.

Chile lidera geração de lixo na América Latina, mas recicla pouco

Os chilenos lideram a geração de lixo na América Latina, com 16,9 milhões de toneladas ao ano, das quais reciclam apenas cerca de 10% por falta de compromisso da população, que só agora parece se conscientizar a necessidade de uma mudança.

Cientistas clonam roedor utilizando apenas uma gota de sangue

Técnica foi desenvolvida por pesquisadores do Japão. Clone, uma fêmea, pode viver mesma idade e ainda conceber filhotes.

Brasil aposta na produção de remédios e vacinas para cortar custos

A partir de 2015, país quer produzir 100% de vacinas contra a gripe A, além de medicamentos biológicos. Economia chegaria a R\$ 225 bilhões por ano. Falta de tecnologia faz especialistas duvidarem da meta.

Golfo do México pode ter área tóxica do tamanho de Sergipe, diz NOAA

Zonas são geradas pela contaminação da água por nutrientes agrícolas. Segundo a NOAA, fenômeno pode impactar negativamente a economia.

Brasil precisará de 100 novas usinas de etanol até 2020

Nos próximos oito anos a procura por combustíveis leves, como etanol, gasolina e gás natural, crescerá 50%, segundo estimativa da União da Indústria de Cana-de-Açúcar.

Ministério do Meio Ambiente diz que não autorizou o tráfico de animais com nova norma

Segundo a nota do ministério, a resolução diz que "os animais que não puderem ser reintroduzidos na natureza de imediato, nem encaminhados aos Centros de Triagem de Animais Silvestres e, caso não haja guardadores provisórios cadastrados disponíveis para recebê-los, permanecem com os infratores até terem condições de serem removidos".

O futuro do licenciamento ambiental

Cidades, clima, Cadastro Ambiental Rural e unidades de conservação devem ser considerados.

Japão aprova primeiro teste do mundo com células iPS humanas

Essas células seriam programadas para se transformarem em tecido da retina, que seria implantado depois em pacientes que sofrem

uma degeneração relacionada com a idade.

Cientistas encontram nova ave que vive em área urbanizada do Camboia

Pássaro foi descrito por pesquisadores na publicação 'Forktail'. Apesar de ter sido encontrado há pouco tempo, pássaro já corre riscos.

Instituto de Botânica descobre sete espécies de fungos em Paranapiacaba/SP

Descrições ajudam a conhecer melhor a diversidade do reino Fungi.

Plano climático dos EUA estabelece corte das emissões de CO2 do país

Projeto, que será lançado por Obama, foi divulgado pela Casa Branca. Iniciativa tem foco nas emissões do país e também metas internacionais.

Censo contabiliza mais de cinco mil papagaios-de-cara-roxa no Paraná

Dormitórios das aves foram monitorados por pesquisadores e voluntários. Contagem foi feita durante três dias no mês de maio pela SPVS.

Filhote órfão de rinoceronte recebe nova 'casa' em parque na Índia

Animal foi abrigado em espaço adaptado para ele em reserva ambiental. Mãe do bebê rinoceronte foi morta há dois meses por caçadores, diz WWF.

Japão defende a legalidade de cacar baleias para fins científicos

Captura de cetáceos na Antártida com fins comerciais viola convenção.

Projeto que monitora qualidade da água dos rios de SP busca financiamento coletivo

Até 30 de junho, o projeto Observando os Rios precisa angariar R\$ 9.200 para dar início a uma nova fase, que pretende monitorar a qualidade da água dos rios que formam a Bacia do Rio Jundiáí, no interior de São Paulo.

Litoral e costa sustentáveis

Nível do mar, inundações, atividades litorâneas e erosão do solo são avaliados por pesquisador espanhol.

MMA destaca políticas públicas de incentivo à produção agrícola sustentável no Brasil

O secretário de Extrativismo e Desenvolvimento Rural Sustentável do Ministério do Meio Ambiente, Paulo Guilherme Cabral, destacou sete ações, executadas de forma integrada pelo governo e sociedade, como iniciativas que avançam para garantir a produção agrícola sustentável.

Arnold Schwarzenegger promete ser 'exterminador' a serviço da natureza

Ator está na Argélia, onde abriu filial de sua ONG de proteção ambiental. 'Nós podemos fazer melhor' declarou em coletiva de imprensa nesta terça-feira.

Missão espacial chinesa é concluída e astronautas devem voltar à Terra

Previsão é que astronautas da Shenzhou-10 voltem na quarta-feira (26). Meta da China é construir estação espacial tripulada até 2020, diz agência.

Especialistas consideram insuficiente plano climático de Obama

Para alguns especialistas, será uma batalha penosa implementar as políticas que Obama anunciou utilizando seus poderes executivos, uma vez que os legisladores americanos têm sido incapazes de chegar a um acordo sobre como preservar a economia e, ao mesmo tempo, reduzir as emissões.

Festival que incentiva consumo de carne de cães gera polêmica na China

Animais foram colocados em gaiolas para venda em regiões do país. Dez milhões de cães são mortos por ano para que a carne seja consumida.

Recicláveis valem comida em Mercado do Escambo no México

Esta filosofia cresce cada vez mais entre os cerca de 20 milhões de habitantes da Cidade do México e região metropolitana. Prova disso são as longas e lentas filas que os adeptos do Mercado do Escambo precisam tolerar.

Leilão de energia existente não deve acontecer em 2013

O leilão de energia existente "A-0" só deve acontecer novamente neste ano se o cenário do setor elétrico mudar, disse o diretor-geral da Aneel, Romeu Rufino.

Cientistas podem ter encontrado até sete planetas em torno de estrela

Cientistas estimam três exoplanetas em torno da estrela Gliese 667C. Dados foram obtidos com a ajuda de telescópios do ESO.

Pesquisadores portugueses alteram código genético de um fungo

Biologia assegurava até então que o código genético era imutável.

Bike de papelão feita com US\$ 9 pode ter produção em massa

Depois de ganhar fama ao ser apresentada ao mundo no ano passado, magrela ecológica busca apoio no site de financiamento coletivo Indiegogo para virar realidade – em larga escala.

Rio ganha centro global de pesquisa sobre desenvolvimento sustentável

Centro Rio+ vai investigar como estabelecer uma economia verde mundial. Instituição ligada à ONU terá sede na Coppe/UFRJ, na Ilha do Fundão.

Zoológico dos Estados Unidos recaptura panda-vermelho 'fuião'

Animal havia desaparecido no domingo, de acordo zoo de Washington. Ele foi recapturado e levado por técnicos do local.

Proibição de pesca em Roraima encerra no próximo dia 30

Piracema teve início no dia 1º de março no estado. Somente o defeso da reprodução do Pirarucu segue até 30 de agosto.

Governo faz recenseamento de pescadores profissionais

O registro é um direito de quem faz da pesca a sua profissão ou o seu principal meio de vida. Com ele, o trabalhador pode ter acesso aos programas sociais do governo federal.

Novo estudo demonstra contaminação de água potável por gás de xisto

As concentrações de metano na água potável das residências situadas a menos de um quilômetro dos locais de perfuração eram, em média, seis vezes maiores às da água das casas que estavam mais distantes, enquanto as concentrações de etano eram 23 vezes superiores.

Monumentos de cidade da Coreia do Norte viram patrimônio da Unesco

Palácio, escola e muralhas de Kaesong entram para lista das Nações Unidas.

Panda gigante tem gêmeos na China

Espécie está criticamente ameaçada de extinção por conta da caça ilegal e da urbanização.

Apenas 7,5% da Caatinga está protegida

Bioma do semiárido nordestino é o mais sensível à interferência humana e às mudanças climáticas, alertam pesquisadores em conferência do BIOTA Educação.

Satélite descobridor de exoplanetas vai ser aposentado, diz agência

CoRoT sofreu problemas técnicos e já não responde a comandos. Agência Espacial Francesa divulgou decisão nesta segunda-feira (24).

Rússia estabelece penas 'mais duras' para tráfico de animais em extinção

Com a alteração, 'traficantes' podem ser processados ??sob a lei criminal. Ação agora vale independentemente do valor ou volume das 'mercadorias'.

Greenpeace: pesticidas contaminam ervas da medicina tradicional chinesa

Segundo testes realizados para o estudo do Greenpeace "Ervas chinesas: elixir da saúde ou coquetel de pesticidas?", o mais recente a abordar os efeitos nocivos da indústria agropecuária chinesa de larga escala, alguns níveis de resíduos superaram em centenas de vezes os padrões de segurança da União Europeia.

'Novo clima' obriga seguradoras a alterar avaliação de risco, diz estudo

Observação de dados históricos já não é suficiente para realizar seguros. Especialistas apontam que empresas precisam verificar previsões.

Vulcão Etna está entre os novos Patrimônios Mundiais da Unesco

Villas Médici da Itália também foram acrescentadas na lista no domingo. Comitê do Patrimônio Mundial adicionou cinco locais naturais e 14 culturais.

Investigação na Anvisa encontra irregularidade em 23 agrotóxicos

Sindicância constatou liberação para venda mesmo sem análise completa. Nome dos produtos e dos fabricantes não serão divulgados por enquanto.

Cultivadores colombianos investem na produção de energia limpa

Energia é produto de águas residuais de fábrica de refino de óleo de palma. Programa produz energia pela conversão do gás metano em combustível.

Novo vírus da gripe aviária pode se espalhar pelo mundo, diz estudo

Pesquisadores acreditam que a epidemia pode reaparecer no outono. Vírus H7N9 já infectou mais de 130 pessoas na China e em Taiwan.

Fórum Mundial do Meio Ambiente propõe reflexão sobre hábitos de consumo

A chamada Carta de Foz do Iguaçu, que reuniu as conclusões gerais do fórum, destacou a necessidade de uma mudança radical nos padrões de consumo e produção, levando em conta a situação alarmante dos ecossistemas e dos recursos hídricos.

Malásia declara estado de emergência no sul devido a fumaca

Nuvem é formada por incêndios florestais na ilha indonésia de Sumatra. Queimadas na Indonésia elevou o nível de poluição do ar.

Brasil assume comando do Comitê Internacional do Algodão

O brasileiro José Sette assume a entidade máxima do setor depois de anos à frente da organização internacional do café.

Satélite revela que baleias-jubartes mergulham a 300 metros de profundidade

Os mergulhos, de meia hora, repetiram-se várias vezes ao longo de dias, conforme a fêmea de jubarte deixava as águas mais quentes do Brasil em busca de sua área de alimentação, na Antártida.

Pesquisa brasileira revela impacto do efeito estufa na agricultura

Os primeiros resultados de um estudo que faz parte do projeto Climapest da Empresa Brasileira de Pesquisa Agropecuária (Embrapa) sobre o impacto do efeito estufa na agricultura apontam para modificações na qualidade da pastagem do gado.

Governo trata licença ambiental como maldição, diz ONG

Diretor da SOS Mata Atlântica critica o sucateamento dos órgãos ambientais e diz que o Brasil perdeu a oportunidade de ser líder mundial na área de sustentabilidade.

Florestas urbanas reduzem efeito da poluição e salvam vidas, diz estudo

A cada ano, árvores em áreas urbanizadas salvam uma vida por cidade. Elas reduzem a quantidade de partículas contaminadas do ar e evitam doenças.

Índigenas desocupam fazenda Água Clara em Sidrolândia/MS

Fazenda havia sido ocupada por índios da etnia terena, no sábado (22). Funai e advogado dos donos da propriedade confirmam desocupação.

Chuvas de monção podem ter causado 1000 mortes no norte da Índia

Doze mil pessoas foram resgatadas pela equipe da força aérea e terrestre, que enfrentaram o mau tempo e o terreno inóspito.

Passarela que leva os turistas até os saltos das Cataratas é interditada

Neste domingo (23), o volume de água chegava a dez milhões de litros. Grades que protegem a passarela foram retiradas para evitar acidentes.

Polícia ambiental apreende 25 kg de mariscos em Vitória/ES

Segundo os militares, a extração desse tipo de animal é muito impactante. A ação de um homem foi flagrada, mas ele conseguiu fugir.

Astrônomos põem em xeque descoberta de planeta parecido com a Terra

Planeta de Alfa Centauro B não é o primeiro mundo promissor a desaparecer nas sombras da incerteza.

Capital dos dinossauros, Uberaba/MG quer criar segundo geoparque do Brasil

Dos 21 dinossauros encontrados no Brasil, cinco foram descobertos na cidade mineira, o que lhe rendeu o título de capital nacional dos dinossauros.

Guardiões de tesouro peruano bloqueiam contrabando em pacote do correio

Ao invés de se aventurarem ao redor do mundo saqueando ruínas, arqueólogos tentam evitar que antigas relíquias de civilizações pré-colombianas sejam despachadas do país.

Adesão do Brasil ao maior consórcio astronômico mundial gera expectativas

Apesar de controvérsia sobre alto valor a ser pago para acessar Observatório Europeu do Sul, grande parte dos astrônomos brasileiros consideram projeto fundamental para o avanço da ciência no país.

Brotas é a cidade com mais focos de queimada em SP, segundo o Inpe

De acordo com instituto, município teve 105 focos de incêndio só neste ano. Prefeitura e Corpo de Bombeiros treinam moradores para serem brigadistas.

Monte Fuji é reconhecido como patrimônio da humanidade

O Comitê do Patrimônio Mundial louvou este pico de 3.776 metros de altura como "inspiração de poetas e artistas e objeto de peregrinação em séculos".

17 / 06 / 2013 Sensibilidade auditiva é característica antiga na evolução humana

Descoberta de mais antigo fóssil de ossos da orelha de homínido revela pistas sobre origem do homem.

17 / 06 / 2013 Abraço à Represa de Guarapiranga chama a atenção para a preservação de mananciais

As atividades incluíram um passeio ciclístico, o plantio de mudas e oficinas ambientais, como de limpeza de água e de ensino da arte milenar japonesa de montagem de arranjos de flores.

17 / 06 / 2013 Cientistas descobrem nova espécie de peixe em mar de ilha do Caribe

Animal foi descoberto próximo à ilha de Curaçao, a 160 m de profundidade. 'Haptoclinus dropi' mede cerca de 2,5 centímetros.

17 / 06 / 2013 Rússia homenageia primeira mulher cosmonauta a voar ao espaço

A Rússia dedicou o domingo (16) a homenagear a cosmonauta Valentina Tereshkova, que se tornou há 50 anos a primeira mulher a voar ao espaço a bordo da nave Vostok 6.

17 / 06 / 2013 Lencóis Maranhenses têm 5,5 mil moradores de comunidades tradicionais

As comunidades vivem na região há mais de 200 anos e o governo ainda não iniciou o processo de desocupação do território desde que a unidade foi criada em 1981.

17 / 06 / 2013 Pesquisadores criam Rede Brasileira de Astrobiologia

Astrobiologia é uma área de pesquisa relativamente recente no país e no mundo. A ideia é entender o fenômeno da vida no universo.

17 / 06 / 2013 Projeto quer transformar experiências pontuais em modelo de desenvolvimento para o litoral paulista

A iniciativa, do Instituto de Estudos, Formação e Assessoria em Políticas Sociais, pesquisa soluções econômicas, urbanas e ambientais para as cidades que serão mais impactadas pela exploração do petróleo do pré-sal.

17 / 06 / 2013 Grandes eventos compensam emissão de CO2 com plantio de árvores

O Estudo de Impacto de Emissões em CO2 Equivalente da Copa 2014 indica que o transporte aéreo será o maior agente de emissão durante a Copa, sendo responsável por 60% dos gases. Em junho, a Fifa anunciou que investirá US\$ 20 milhões para que o Mundial no Brasil seja sustentável.

17 / 06 / 2013 Governo chinês anuncia medidas para combater poluição

Entre outras coisas, o governo chinês afirmou que vai suprimir o excesso de capacidade nas indústrias mais poluentes - como o aço, o cimento, o ferro e o alumínio - em um ritmo mais acelerado do que o previsto inicialmente no plano quinquenal.

17 / 06 / 2013 Ruínas de cidade medieval são descobertas no Camboja

A descoberta, situada nas montanhas Kulen na província de Siem Reap, corresponde a uma cidade chamada Mahendraparvata, cuja construção é de cerca de 350 anos antes da do templo de Angkor, declarado Patrimônio da Humanidade pela Unesco e situado a 60 quilômetros mais ao sul.

17 / 06 / 2013 Avião solar chega a Washington após cruzar os EUA

A aeronave, que funciona graças a 12 mil células fotovoltaicas, pode voar de dia e de noite.

17 / 06 / 2013 Carqueiro espacial com 6,6 toneladas de suprimentos chega à ISS

Comida, água e oxigênio foram enviados para astronautas da ISS. Cargueiro deixará a estação espacial em outubro levando lixo e dejetos.

17 / 06 / 2013 Peru receberá em 2014 a grande conferência da ONU sobre o clima

Estas negociações lançaram a contagem regressiva do grande encontro de 2015 em Paris, onde deve ser concluído um grande acordo global que comprometa todos os Estados a reduzirem suas emissões de gases de efeito estufa para alcançar o objetivo de limitar a mudança climática a 2 graus Celsius.

17 / 06 / 2013 Cientista analisa qualidade do ar de metrô

Cada amostra de ar coletada continha um bilhão de bactérias, algo equiparável ao encontrado no ar exterior.

17 / 06 / 2013 Duas novas espécies de aranhas minúsculas são descobertas na China

Animais têm tamanho aproximado de um grão de areia. Elas foram descobertas graças às suas pequenas teias, dizem cientistas.

17 / 06 / 2013 Campo Grande/MS registra chuva de 21,4 milímetros em uma hora, diz Inmet

Rajadas de vento chegaram a 83,8 km/h entre 9h e 10h deste domingo (16). Temporal provocou quedas de árvores e destelhamento de casas.

17 / 06 / 2013 Glaciares da Antártica derretem mais rápido nas bases, diz estudo da Nasa

Contato com oceano mais quente acelera perda de massa na região. A Antártica contém, em média, 60% das reservas de água doce do planeta.

18 / 06 / 2013 Fenômeno das rochas deslizantes pode ter sido desvendado pela Nasa

Pedras aparentam se mover sozinhas sobre deserto nos Estados Unidos.

18 / 06 / 2013 Nasa anuncia nova equipe de astronautas

Dos oito selecionados quatro são mulheres; grupo vai integrar missão a asteroide em 2020.

18 / 06 / 2013 Equador investiga água de rios após vazamento de óleo na Amazônia

As amostras coletadas em rios da região, como o Amazonas, devem apontar os impactos do vazamento de petróleo.

18 / 06 / 2013 Índios interditam rodovia no Ceará em protesto por demarcação de terras

O presidente da Associação das Comunidades dos Índios Tapeba, Ricardo Weibe, disse que os índios vão permanecer no local até serem recebidos pelo governador do Ceará, Cid Gomes.

18 / 06 / 2013 Brasil e UE debatem cooperação

Encontro bilateral busca identificar as melhores práticas para o intercâmbio de material biológico entre as coleções para fins de investigação científica.

18 / 06 / 2013 Indicador mede sustentabilidade na produção rural

Metodologia RISE em propriedades rurais é viável para aplicação em unidades do agronegócio brasileiro.

18 / 06 / 2013 Um parque para Alcatrazes

MMA defende criação de parque nacional localizado no litoral paulista, que está em discussão na Câmara.

18 / 06 / 2013 Marte teve a química certa para a origem da vida, mostra meteorito

Equipe do Instituto de Astrobiologia da Universidade do Havaí, em Manoa, analisou um meteorito de Marte e encontrou uma alta concentração de boro. Quando essa substância está oxidada e vira o borato, ela passa a desempenhar um papel fundamental na formação do RNA.

18 / 06 / 2013 Governo vai licitar Hidrelétrica Três Irmãos em setembro

A hidrelétrica é operada atualmente pela Companhia Energética de São Paulo e não terá o contrato prorrogado porque a concessionária não aderiu às regras para a redução das tarifas determinadas pela Lei 12.783.

18 / 06 / 2013 Prozac na água torna peixes antissociais e agressivos

Polição por resíduos fármacos, como o antidepressivo de fluoxetina, compromete sistema neurológico e reprodutivo dos peixes, revela estudo.

18 / 06 / 2013 MMA promove debate no Dia Mundial de Combate à Desertificação

Com o tema Convivência com a Semiáridade: Seca e Água, os debates terminam nesta terça-feira (18).

18 / 06 / 2013 Cingapura registra alto nível de poluição

Prédios ficaram encobertos pela 'neblina' nesta segunda-feira (17). Índice de Normas de Poluentes atingiu 111 pontos às 16h locais.

18 / 06 / 2013 Sistema Campo Limpo destina mais de 17 mil toneladas de embalagens vazias de defensivos agrícolas no país

Quantidade é 4% maior que a obtida entre janeiro e maio de 2012.

SCIENCE

The significance of copper concentrations in natural gold alloy for reconnaissance exploration and understanding gold-depositing hydrothermal systems

N. R. Moles, R. J. Chapman, and R. B. Warner
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 115-130
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/115?ct=ct>

Practicing the Redemptive Love of Jesus: The Enduring Witness of Kagawa Toyohiko (1888-1960)¹

Thomas John Hastings
Theology Today. 2013; 70(2): p. 160-180
<http://ttj.sagepub.com/cgi/content/abstract/70/2/160?ct=ct>

DISSOLUTION OF OPHIUROID OSSICLES ON THE SHALLOW ANTARCTIC SHELF: IMPLICATIONS FOR THE FOSSIL RECORD AND OCEAN ACIDIFICATION

BEVERLY J. WALKER, MOLLY F. MILLER, SAMUEL S. BOWSER, DAVID J. FURBISH, and GUILHERME A. R. GUALDA
Palaios. 2013; 28(5): p. 317-332
<http://palaios.sepmonline.org/cgi/content/abstract/28/5/317?ct=ct>

Manganese-oxidizing photosynthesis before the rise of cyanobacteria

Jena E. Johnson, Samuel M. Webb, Katherine Thomas, Shuhei Ono, Joseph L. Kirschvink, and Woodward W. Fischer
PNAS. published 24 June 2013, 10.1073/pnas.1305530110 Open Access
<http://www.pnas.org/cgi/content/abstract/1305530110v1?ct=ct>

Metal migration at the North Miiel Ni sulphide deposit in the southern Yilgarn Craton: Part 1, regolith and groundwater

R. R. P. Noble, M. J. Lintern, D. G. Gray, N. Reid, and R.R. Anand
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 67-85
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/67?ct=ct>

DIURNAL VARIATIONS OF RADON AND THORON ACTIVITY CONCENTRATIONS AND EFFECTIVE DOSES IN DWELLINGS IN NISKA BANJA, SERBIA

J. Vaupotic, T. Streil, S. Tokonami, and Z. S. Zunic
Radiat Prot Dosimetry. published 25 June 2013, 10.1093/rpd/nct145
<http://rpd.oxfordjournals.org/cgi/content/abstract/nct145v1?ct=ct>

Increased stray gas abundance in a subset of drinking water wells near Marcellus shale gas extraction

Robert B. Jackson, Avner Vengosh, Thomas H. Darrah, Nathaniel R. Warner, Adrian Down, Robert J. Poreda, Stephen G. Osborn, Kaiguang Zhao, and Jonathan D. Karr
PNAS. published 24 June 2013, 10.1073/pnas.1221635110 Open Access
<http://www.pnas.org/cgi/content/abstract/1221635110v1?ct=ct>

Patterning droplets with durotaxis

Robert W. Style, Yonglu Che, Su Ji Park, Byung Mook Weon, Jung Ho Je, Callen Hyland, Guy K. German, Michael P. Power, Larry A. Wilen, John S. Wettlaufer, and Eric R. Dufresne
PNAS. published 24 June 2013, 10.1073/pnas.1307122110
<http://www.pnas.org/cgi/content/abstract/1307122110v1?ct=ct>

Lava-sediment interactions in an Old Red Sandstone basin, NE Scotland

Malcolm Hole, David Jolley, Adrian Hartley, Sophie Leleu, Nadine John,

and Michael Ball
Journal of the Geological Society. published 24 June 2013,
10.1144/jgs2012-107
<http://jgs.lyellcollection.org/cgi/content/abstract/jgs2012-107v1?ct=ct>

Riparian eucalypt biogeochemical expression of groundwater salinity, Murray River, South Australia

Stephanie M. McLennan, Steven M. Hill, Michael Hatch, Karin Barovich, and Volmer Berens
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 159-168
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/159?ct=ct>

Yorkshire Geological Society * Registered Charity No. 220014 * Society Proceedings 2012

Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 221-226
<http://pygs.lyellcollection.org/cgi/content/extract/59/3/221?ct=ct>

Metal migration at the North Miitel Ni sulphide deposit in the southern Yilgarn Craton: Part 3, gas and overview

R. R. P. Noble, M. J. Lintern, B. Townley, R. R. Anand, D. G. Gray, and N. Reid
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 99-113
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/99?ct=ct>

Obituary

Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 219
<http://pygs.lyellcollection.org/cgi/content/extract/59/3/219?ct=ct>

Fracture patterns in the Permian Magnesian Limestone Aquifer, Co. Durham, UK

Lukasz Kortas and Paul L. Younger
Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 161-171
<http://pygs.lyellcollection.org/cgi/content/abstract/59/3/161?ct=ct>

Metal migration at the North Miitel Ni sulphide deposit in the southern Yilgarn Craton: Part 2, vegetation and organic soil

M.J. Lintern, R.R.P. Noble, N. Reid, and R.R. Anand
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 87-98
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/87?ct=ct>

Geochemical assessment of arsenic toxicity in mine site along the proposed Mineral Tramway Project, Camborne, Cornwall

R. J. Howell, S. B. Rees, A. Barnes, A. Prestia, R. Warrender, and B. M. Dey
Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 145-157
<http://geea.lyellcollection.org/cgi/content/abstract/13/2/145?ct=ct>

Giant crinoid stems from the Lower Carboniferous (Mississippian) of Clitheroe, Lancashire, UK

S. K. Donovan
Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 211-218
<http://pygs.lyellcollection.org/cgi/content/abstract/59/3/211?ct=ct>

Folding and faulting in the Chalk at Dykes End, Bridlington Bay, East Yorkshire, resulting from reactivations of the Flamborough Head Fault Zone

I. C. Starmer
Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 195-201
<http://pygs.lyellcollection.org/cgi/content/abstract/59/3/195?ct=ct>

A tooth of Edestus from the early Pennsylvanian of Cheshire, UK

Wayne M. Itano
Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 187-194
<http://pygs.lyellcollection.org/cgi/content/abstract/59/3/187?ct=ct>

Rare earth element and gold exploration in glaciated terrain: example from the Makara area, northern Finland

Olli Sarapaa and Pertti Sarala

Geochemistry: Exploration, Environment, Analysis. 2013; 13(2): p. 131-143

<http://geea.lyellcollection.org/cgi/content/abstract/13/2/131?ct=ct>

A Lower Palaeozoic inlier in Wharfedale, North Yorkshire, UK

P. J. Murphy and D. Warburton

Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 173-176

<http://pyqs.lyellcollection.org/cgi/content/abstract/59/3/173?ct=ct>

The Vale House Flints Member, a flint-rich unit of the Burnham Chalk Formation of the Northern Province, East Yorkshire and Lincolnshire, UK

P. N. Hildreth

Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 177-186

<http://pyqs.lyellcollection.org/cgi/content/abstract/59/3/177?ct=ct>

A new record of the trace fossil Selenichnites from the Middle Jurassic Scalby Formation of the Cleveland Basin, Yorkshire

Mike Romano and Martin A. Whyte

Proceedings of the Yorkshire Geological Society. 2013; 59(3): p. 203-210

<http://pyqs.lyellcollection.org/cgi/content/abstract/59/3/203?ct=ct>

Diet of Australopithecus afarensis from the Pliocene Hadar Formation, Ethiopia

Jonathan G. Wynn, Matt Sponheimer, William H. Kimbel, Zeresenay Alemseged, Kaye Reed, Zelalem K. Bedaso, and Jessica N. Wilson

PNAS. 2013; 110(26): p. 10495-10500

<http://www.pnas.org/cgi/content/abstract/110/26/10495?ct=ct>

Stable isotope-based diet reconstructions of Turkana Basin hominins

Thure E. Cerling, Fredrick Kyalo Manthi, Emma N. Mbuu, Louise N.

Leakey, Meave G. Leakey, Richard E. Leakey, Francis H. Brown, Frederick

E. Grine, John A. Hart, Prince Kaleme, Helene Roche, Kevin T. Uno, and

Bernard A. Wood

PNAS. 2013; 110(26): p. 10501-10506

<http://www.pnas.org/cgi/content/abstract/110/26/10501?ct=ct>

Three-dimensional distribution of polymorphs and magnesium in a calcified underwater attachment system by diffraction tomography

Hanna Leemreize, Jonathan D. Almer, Stuart R. Stock, and Henrik

Birkedal

J R Soc Interface. 2013; 10(86): p. 20130319

<http://rsif.royalsocietypublishing.org/cgi/content/abstract/10/86/20130319?ct=ct>

Spatial distribution of afterslip for the 2008 Wenchuan earthquake, China

M. Hao, D. Cui, Q. Wang, W. Gan, S. Qin, and W. Wang

Geophys. J. Int. published 25 June 2013, 10.1093/gji/ggt223

<http://gji.oxfordjournals.org/cgi/content/abstract/ggt223v1?ct=ct>

Out of the tropics, but how? Fossils, bridge species, and thermal ranges in the dynamics of the marine latitudinal diversity gradient

David Jablonski, Christina L. Belanger, Sarah K. Berke, Shan Huang,

Andrew Z. Krug, Kaustuv Roy, Adam Tomasovych, and James W. Valentine

PNAS. 2013; 110(26): p. 10487-10494

<http://www.pnas.org/cgi/content/abstract/110/26/10487?ct=ct>

Profile of David Jablonski

Nicholette Zeliadt

PNAS. 2013; 110(26): p. 10467-10469

<http://www.pnas.org/cgi/content/full/110/26/10467?ct=ct>

Isotopic evidence of early hominin diets

Matt Sponheimer, Zeresenay Alemseged, Thure E. Cerling, Frederick E.

Grine, William H. Kimbel, Meave G. Leakey, Julia A. Lee-Thorp, Fredrick

Kyalo Manthi, Kaye E. Reed, Bernard A. Wood, and Jonathan G. Wynn

PNAS. 2013; 110(26): p. 10513-10518

<http://www.pnas.org/cgi/content/abstract/110/26/10513?ct=ct>

Genetic and archaeological perspectives on the initial modern human colonization of southern Asia

Paul Mellars, Kevin C. Gori, Martin Carr, Pedro A. Soares, and Martin B. Richards

PNAS. 2013; 110(26): p. 10699-10704

<http://www.pnas.org/cgi/content/abstract/110/26/10699?ct=ct>

DIURNAL VARIATIONS OF RADON AND THORON ACTIVITY CONCENTRATIONS AND EFFECTIVE DOSES IN DWELLINGS IN NISKA BANJA, SERBIA

J. Vaupotic, T. Streil, S. Tokonami, and Z. S. Zunic

Radiat Prot Dosimetry. published 25 June 2013, 10.1093/rpd/nct145

<http://rpd.oxfordjournals.org/cgi/content/abstract/nct145v1?ct=ct>

Resource geographies II: The resource-state nexus

Gavin Bridge

Progress in Human Geography. published 25 June 2013,

10.1177/0309132513493379

<http://phg.sagepub.com/cgi/content/abstract/0309132513493379v1?ct=ct>

Military landscapes: Agendas and approaches for future research

Rachel Woodward

Progress in Human Geography. published 25 June 2013,

10.1177/0309132513493219

<http://phg.sagepub.com/cgi/content/abstract/0309132513493219v1?ct=ct>

Interaction between thin- and thick-skinned tectonics in the foothill areas of an inverted graben. The Middle Magdalena Foothill belt

Nestor Moreno, Alejandro Silva, Andres Mora, Eliseo Teson, Isaid Quintero, Luis Ernesto Rojas, Cristina Lopez, Vladimir Blanco, Jaime Castellanos, Javier Sanchez, Lidy Osorio, Jay Namson, Daniel Stockli, and Wilson Casallas

Geological Society, London, Special Publications. published 25 June 2013, 10.1144/SP377.18

<http://sp.lyellcollection.org/cgi/content/abstract/SP377.18v1?ct=ct>

Radioactivity and gamma-dose rates observed at the Morungaba granites, Southeastern Brazil

Fabio de Oliveira Lucas and Fernando Brenha Ribeiro

Radiat Prot Dosimetry. 2013; 155(2): p. 197-209

<http://rpd.oxfordjournals.org/cgi/content/abstract/155/2/197?ct=ct>

Environmental impact of a hospital waste incineration plant in Krakow (Poland)

Agnieszka Gielar and Edeltrauda Helios-Rybicka

Waste Management Research. 2013; 31(7): p. 722-728

<http://wmr.sagepub.com/cgi/content/abstract/31/7/722?ct=ct>

A survey of natural radiation levels in soils and rocks from Aliaga-Foca region in Izmir, Turkey

N. Fusun Cam, Ibrahim Ozken, and Günseli Yaprak

Radiat Prot Dosimetry. 2013; 155(2): p. 169-180

<http://rpd.oxfordjournals.org/cgi/content/abstract/155/2/169?ct=ct>

Popular science publishing in contemporary China

Guosheng Wu and Hui Qiu

Public Understanding of Science. 2013; 22(5): p. 521-529

<http://pus.sagepub.com/cgi/content/abstract/22/5/521?ct=ct>

Age-dependent dose and health risk due to intake of uranium in drinking water from Jaduguda, India

A. C. Patra, S. Mohapatra, S. K. Sahoo, P. Lenka, J. S. Dubey, R. M. Tripathi, and V. D. Puranik

Radiat Prot Dosimetry. 2013; 155(2): p. 210-216

<http://rpd.oxfordjournals.org/cgi/content/abstract/155/2/210?ct=ct>

Seismoelectric wave propagation numerical modelling in partially saturated materials

S. Warden, S. Garambois, L. Jouniaux, D. Brito, P. Sailhac, and C. Bordes

Geophys. J. Int. published 19 June 2013, 10.1093/gji/ggt198

<http://gji.oxfordjournals.org/cgi/content/abstract/ggt198v1?ct=ct>

Tracking the changes of a fish community following a megascale reclamation and ensuing mitigation measures

Yin-Ki Tam, I-Hsun Ni, Cynthia Yau, Man-Yee Yan, Wai-Shan Chan, Sze-Man Chan, and Hsueh-Jung Lu
ICES J. Mar. Sci. published 19 June 2013, 10.1093/icesjms/fst046
<http://icesjms.oxfordjournals.org/cgi/content/abstract/fst046v1?ct=ct>

A proposed method for assessing the extent of the seabed significantly affected by demersal fishing in the Greater North Sea
Markus Diesing, David Stephens, and John Aldridge
ICES J. Mar. Sci. published 19 June 2013, 10.1093/icesjms/fst066
<http://icesjms.oxfordjournals.org/cgi/content/abstract/fst066v1?ct=ct>

Judicial Settlement of International Environmental Disputes: Current Problems
Alan Boyle and James Harrison
J Int. Disp. Settlement. published 19 June 2013, 10.1093/jnlids/idt011
<http://jids.oxfordjournals.org/cgi/content/abstract/idt011v1?ct=ct>

A geophysical investigation of the active Hockley Fault System near Houston, Texas
Shuhab D. Khan, Robert R. Stewart, Maisam Otoum, and Li Chang
Geophysics. 2013; 78(4): p. B177-185B
<http://geophysics.geoscienceworld.org/cgi/content/abstract/78/4/B177?ct=ct>

INFAUNAL MANGROVE SWAMP FORAMINIFERA IN THE SETIU WETLAND, TERENGGANU, MALAYSIA
Stephen J. Culver, Eduardo Leorri, D. Reide Corbett, David J. Mallinson, Noor Azhar Mohd Shazili, Mohd Nasir Mohammad, Peter R. Parham, and Rosnan Yaacob
Journal of Foraminiferal Research. 2013; 43(3): p. 262-279
<http://jfr.geoscienceworld.org/cgi/content/abstract/43/3/262?ct=ct>

BULIMINA ARABIENSIS, A NEW SPECIES OF BENTHIC FORAMINIFERA FROM THE ARABIAN SEA
Shivranjan K. Bharti and Arun D. Singh
Journal of Foraminiferal Research. 2013; 43(3): p. 255-261
<http://jfr.geoscienceworld.org/cgi/content/abstract/43/3/255?ct=ct>

PROTOGLOBIGERINIDS OF THE EARLY KIMMERIDGIAN OF THE JURA MOUNTAINS (FRANCE)
Agnes Gorog and Roland Wernli
Journal of Foraminiferal Research. 2013; 43(3): p. 280-290
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EARTH PAGES

In the mantle wet may not imply soft

Posted on [June 17, 2013](#) by [Steve Drury](#) | [Leave a comment](#)

For half a century the Earth's planetary dynamism – plate movements, [mantle convection](#) and so on – has been ascribed to its abundance of water. Experiments on the [ductility](#) of quartz seemed to show that it became much weaker under hydrous conditions, and that was assumed to hold for all common silicates, a view backed up by experiments that deformed minerals under varying conditions. It was widely believed that even a few parts per million in a rock at depth would weaken it by orders of magnitude, a view that increasingly dominated theoretical tectonics on scales up to the whole lithosphere and at different mantle depths. Strangely, the founding assertion was not followed up with more detailed and sophisticated work until the last year or so. Though rarely seen in bulk, the dominant mineral in the mantle is olivine and that is likely to be a major control over ductility at depth, in plumes and other kinds of convection.



Peridotite xenoliths —olivines are light green crystals, pyroxenes are darker. (credit: Wikipedia)

Experimental work at the temperatures and pressures of the mantle has never been easy, and that becomes worse the more realistic the mineral composition of the materials being investigated. High-T, high-P research tends to focus on as few variables as possible: one mineral and one variable other than P and T is the norm. This applies to the latest research (Fei, H. *et al.* 2013. Small effect of water on upper mantle rheology based on silicon self-diffusion coefficients. *Nature*, v. **498**, p. 213-215) but the measurements are of the rate at which silicon atoms diffuse through olivine molecules rather than direct measurements of strain. The justification for this approach is that one of the dominant processes involved in plastic deformation is a form of structural creep in which atoms diffuse through molecules in response to stress – the other is '[dislocation creep](#)' achieved by the migration of structural defects in the atomic lattice.

Contrary to all expectations, changing the availability of water by 4 to 5 orders of magnitude changed silicon diffusion by no more than one order. If confirmed this presents major puzzles concerning [Earth's mantle](#) and lithosphere dynamics. For instance, the weak zone of the asthenosphere cannot be a response to water and nor can the relative immobility of hotspots. Confirmation is absolutely central, in the sense of repeating Fei *et al.*'s experiments and also extending the methods to other olivine compositions – magnesium-rich forsterite was used, whereas natural [olivines](#) are solid solutions of Mg- and Fe-rich end members – and to materials more representative of the mantle, e.g. olivine plus pyroxene as a minimum (Brodholt, J. 2013. Water may be a damp squib. *Nature*, v. **498**, p. 18-182)

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Yes, it was hot during the Permian

Posted on [June 17, 2013](#) by [Steve Drury](#) | [1 Comment](#)

For those of us living in what was the heart of [Pangaea](#) – Europe and North America – more than 250 Ma ago this item's title might seem like the ultimate truism. However, despite our vision of desert dune sands and evaporating inland seas, glaciation blanketed much of

the Gondwana part of the supercontinent until the Middle Permian then lying athwart the South Pole. That would go a long way to accounting for extreme dryness at low to mid-latitudes, especially in the deep interior of Pangaea, but just how hot might tropical climates have been? The deglaciation of Gondwana was abrupt and has been touted as an analogue for a possible anthropogenic closure to the Cenozoic glacial epoch that began around 34 Ma in Antarctica and has periodically gripped land at northern latitudes as low as 40°N for the last 2.5 Ma. Since the present distribution of continents is totally different from the unique pole-to-pole shape of Pangaea, that is probably a view that is not widely held by palaeoclimatologists. Nonetheless, getting hard data on Permian conditions has an intrinsic interest for most geoscientists.



Playa lake in Death Valley, USA (credit: Wikipedia)

One of the best ways of measuring past temperatures, whether surficial or deep within the crust, almost directly is based on fluids trapped within minerals formed at the time of interest. In Permian strata there is no shortage of suitable material in the form of evaporite minerals, especially common salt or halite. A distinctive chevron-like texture develops in halite that forms at the water-atmosphere interface in playa lakes that dry out every year. When thin sections of samples that contain fluid inclusions are slowly heated the air bubbles trapped in salt during crystallisation gradually homogenise with the other trapped fluids. Based on samples that have formed at the present day under a range of air temperatures, the temperature of homogenisation indicates the prevailing air temperature accurately. So well, in fact, that it is possible to assess diurnal temperature variations in suitable halite crystals.

Results have been obtained from Middle Permian halites in Kansas, USA (Zambito, J.J. & Benison, K.C. 2013. Extremely high temperatures and paleoclimate trends recorded in Permian ephemeral lake halite. *Geology*, v. **41**, p. 587-590). In part of the section studied air temperatures reached 73°C, compared with a modern maximum of 57°C recorded in halites from the playas of Death Valley. Moreover, they exhibit changes of more than 30°C during daily cycles. But that kind of weather is common in other hot dry areas today, such as the Dasht-e Lut in eastern Iran. Also, the full data show crystallisation at lower temperatures (maxima of 30-40°C) in part of the sequence. What is noteworthy is that these data are the first quantitative indicators of weather before the last 2.5 Ma. Since evaporites extend back into the Precambrian, the method will undoubtedly extend accuracy and precision to paleoclimate where only proxies and a modicum of guesswork were previously available.

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End-Triassic mass extinction link to CAMP: It's official?

Posted on [June 10, 2013](#) by [Steve Drury](#) | [1 Comment](#)

Mass extinctions and smaller but significant die-offs in the marine and terrestrial domains have been linked in the geoscientific imagination with many things: asteroid impacts; gamma-ray bursts from distant supernovae; belches of methane from the sea floor; emissions of hydrogen sulfide gas from seawater itself during ocean anoxia events; sea-level changes and more. The most intriguing, since it suggests a causal link between the core-mantle boundary and the biosphere, is the influence of flood basalt events and the gases, both greenhouse and toxic, that they undoubtedly released.

The famous K-T extinction (now K-Pg since the Palaeogene became the Period following the Cretaceous rather than the Tertiary) has swayed back and forth between the Chicxulub impact in Mexico's Yucatán Peninsula and the flood basalts of the Deccan Traps in western India as likely mechanisms, Chicxulub currently being in pole position. The equally devastating event at the close of the Triassic (at 201 Ma) that presaged the rise of the dinosaurs has had a similar external versus internal causality controversy, both the Rochechouarte crater and the Central Atlantic Magmatic Province being candidates.



CAMP flood basalts in Morocco (credit: Wikipedia)

Rochechouarte, however, was nowhere near as energetic an event as the Chicxulub impact. The problem is, as with all events for which the weight of evidence points to very short time scales – of the order of tens to hundreds of thousand years, is the dating of candidate causes. Rochechouarte happened at 201 ± 2 Ma: it may or may not have coincided with faunal change. Yet timing of the CAMP flood basalts has hitherto been even more coarsely tagged. This imprecision is not unconnected with the choice of radiometric dating methods, the $^{40}\text{Ar}/^{39}\text{Ar}$ approach being 'easy' and hence popular, but limited in its precision and accuracy. The 'gold standard' is zircon U-Pb geochronology that depends on the far greater reluctance of the host mineral to lose either parent or daughter isotopes compared with the feldspars, micas and amphiboles used in many other methods. Zircon still in its igneous parent is crucial: it is so durable that vastly older zircons are often found in sediments. Yet basalts contain few zircons.



Zircon crystal under the microscope; length about 250 μm . (Photo credit: Wikipedia)

Zircon geochronology has now emerged from the CAMP flood basalts of eastern Canada, the Atlantic seaboard of the US and that of Morocco, which has a precision of around 30 ka, one to two orders of magnitude better than other methods (Blackburn, T.J. and 8 others 2013. Zircon U-Pb geochronology links the end-Triassic extinction with the Central Atlantic Magmatic Province. *Science*, v. **340**, p. 941-

945). The extinction is defined most readily by a sudden change in fossil pollen and spores, possibly within less than 10 ka, as well as extinction of Triassic marine fauna and large numbers of terrestrial reptile and amphibian taxa followed by diversification of early Jurassic dinosaurs. The oldest CAMP basalts are from Morocco immediately above spores of clearly Triassic age; i.e. before the extinction, whereas the basalt flows in Canada and the eastern US (a mere 3 to 13 ka younger) are above the turnover. So, the start of the CAMP flood volcanism brackets the extinction.

But did CAMP cause, indeed could it have caused the extinction? Blackburn and colleagues cannot be certain. A negative carbon-isotope spike associated with the extinction is estimated to have required almost a million km³ of magma to have been erupted almost instantaneously to inject excess CO₂ into the atmosphere. The dating suggests four major pulses of eruption in the areas studied spread over around 600 ka, the last three being associated with biological diversification and recovery in the earliest Jurassic. In fact the research seems merely to suggest strongly that flood volcanism accompanied the extinction, but leaves its causing the death toll still an open question.

The CAMP events marked the beginning of Pangaea's break-up and the formation of Tethys separating Eurasia and North America from the old Gondwana continental mass. That tropical seaway became the site of massive production of marine carbonates, presumably to draw down any carbon dioxide excess in the atmosphere.

Related articles

- [The Top 5 Extinctions](#) (danniteboul.wordpress.com)
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Review of fracking issues

Posted on [May 31, 2013](#) by [Steve Drury](#) | [Leave a comment](#)

The release and exploitation of natural gas from shales using the unconventional means of *in situ* hydraulic fracturing – ‘fracking’ – has had plenty of bad press, including some hammering in [Earth Pages](#). Now, what seems to be a balanced academic review has appeared on-line in *Science* magazine (Vidic, R.D. *et al.* 2013. Impact of shale gas development on regional water quality. *Science*, v.**340**, DOI: 10.1126/science.1235009). The review focuses on hazards to groundwater resources from a variety of environmental effects, primarily gas migration, contaminant transport through induced and natural fractures, wastewater discharge, and accidental spills.



Protests against shale gas drilling in Bulgaria (credit: Wikipedia)

Much attention has centred on faulty seals put in place to stop gas escaping from drill targets. Yet fewer than 3% of seals are said to

have proved problematic, with some finger-pointing at natural gas leakage from the hydrocarbon-rich shales. After all, there are plenty of natural fractures and completely 'tight' stratigraphic sequences are rare. In fact toxic effects of natural gas leakage on surface vegetation have been widely used as exploration indicators for conventional petroleum. The review does point out that there are so few pre-drilling studies of natural leakage that this controversy – including widely publicised blazing household water supplies – can not yet be resolved. Obviously more independent monitoring of areas above prospective shales are essential; but who will fund them? The one well-documented before-and-after study, from 48 water wells in Pennsylvania, USA, showed no change, though it seems that monitoring after fracking was short-lived.

The chemically-charged water used to induce the hydrofracturing obviously leaves an unmistakable mark when leaks occur, and there have been cases of considerable environmental release. The fluids are indeed a wicked brew of acids, organic thickeners, biocides, alkalis and inorganic surfactants, to name but a few ingredients. To some extent re-use of such fluids, which are costly, ought to mitigate risks. However, once a shale-gas field is fully developed, large volumes of the fracking fluids remain in the subsurface and may leak into shallow groundwater sources. But what pathways do these fluids follow when they are pumped into shales under very high pressure? The review warns of the lesson of toxic fluid leakage from underground coal mines.

The University of Pittsburgh team who compiled the review usefully outline why shale gas is both profitable and feasible. They deal with what methane does in an environmental chemistry sense. It isn't a solvent, so carries no other materials such as toxic ions, but its interaction with bacteria creates reducing conditions. A now well-known hazard of subsurface reduction is dissolution of iron hydroxide, naturally an important component of many rocks, that can adsorb a great range of dangerous ions at potentially high concentrations, including those involving arsenic. Reductive dissolution lets such ions loose into natural waters, even at shallow depths. Yet methane is emitted by a host of sources other than hydrocarbon-rich shale: landfill; swamps; other bacterial action; conventional petroleum fields both active and abandoned; and even deep water boreholes themselves. A recent study of groundwater geochemistry in relation to fracking in Arkansas, USA (Warner, N.R. et al. 2013. Geochemical and isotopic variations in shallow groundwater in areas of the Fayetteville shale development, north-central Arkansas. Applied Geochemistry, v. 33, doi/10.1016/j.apgeochem.2013.04.013) does address changes in groundwater chemistry, but not for all the ions cited by the WHO as potential hazards.

Whereas the mechanisms involved in vertical and lateral migration of subsurface fluids are well understood there is little knowledge of natural structural features such as deep jointing, fractures and fault fragmentation that control actual migration from area to area. The use of natural seepage as an exploration guide was largely abandoned when many studies showing apparently high-priority targets proved to be far removed from the actual source of the moving fluids. The most easily investigated route for leakage is the actual 'plumbing' that fracking uses. This is held together by cement that high pressures can disrupt before it sets, resulting in leaks. A lot depends on 'due diligence' deployed by the contractors, whose regulation can leave a lot to be desired. Vidic and colleagues devote most space to the matter of wastewater and deep formation water, yet make little if any case for routine geochemical monitoring of domestic groundwater supplies in shale-gas fields. Much is directed at the industry itself rather than independent surveys.

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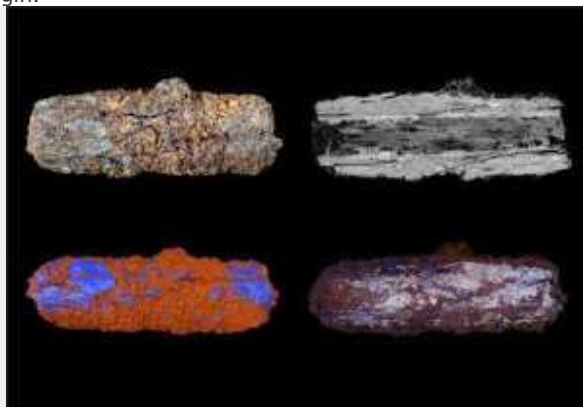
Bling from space

Posted on [May 31, 2013](#) by [Steve Drury](#) | [Leave a comment](#)

People have a keen eye for unusual objects and an even keener one for the aesthetic. Fossil echinoderms with their five-fold starry shape have been enduringly popular as trinkets since the Palaeolithic. Astonishingly, the gravel terrace at Swanscombe that yielded skull fragments of 400 ka *Homo erectus* plus many Acheulean tools also contained a flint bi-face 'hand axe' with a near perfect echinoid in its blunt grip. It cannot be proven, but the object seems to refute the idea that an artistic sense only arose with anatomically modern humans in the last 100 ka. Our immediate ancestors of the Neolithic sometimes took collecting to extremes in graves half full of fossil sea urchins (McNamara, K.J. 2007. [Shepherds' crowns, fairy loaves and thunderstones: the mythology of fossil echinoids in England](#). In: Piccardi, L. & Masse, W.B. *Myth and Geology*. Geological Society, London, Special Publication **273**, 279–294).

Before the invention of metal smelting native gold, iron and copper appear in the archaeological record, undoubtedly because they look and indeed feel so different from the usual pebbles on the beach or just lying around. It is just that element of the odd that continues to draw people, including scientists, into a perpetually stooped posture when the walk across surfaces scattered with pebbles and boulders. The habit is especially hard to shake off for the meteoriticist whose hunting grounds are desert plains and ice caps where oddities are easy to spot, even when rare. So it is interesting when such dogged searchers encounter evidence of long-dead people having done much the same.

By 5300 years ago people had settled in small farming communities in the Nile Valley eventually to develop on the shores of lake – now represented by several smaller water bodies – what is regarded as the world's first city near modern Faiyum. These Predynastic people buried their dead nearer to the Nile at [Gerzeh](#), often sending them off with grave goods. The site has been continually excavated by professional archaeologists for more than a century, beginning with [Sir Flinders Petrie](#). Two of the graves contained metallic iron beads, which presented a puzzle as iron smelting is only known from the 6th century BCE onwards. Unsurprisingly, the beads came to be regarded as artefacts wrought from an iron meteorite, though their highly altered nature and intrinsic value thwarted attempts at full analysis. Geochemists from the Open and Manchester Universities, and the Natural History Museum have now resolved the issue (Johnson, D. *et al.* 2013. Analysis of a prehistoric Egyptian iron bead with implications for the use and perception of meteorite iron in ancient Egypt. *Meteoritics and Planetary Science*, on-line, DOI: 10.1111/maps.12120). Non-destructive electron microscopy and X-ray tomography reveal, respectively, clear signs of the banded Widmanstätten structures and traces of nickel-rich iron alloy (taenite) that typify iron meteorites but are absent from smelted iron. The beads were clearly beaten and rolled into shape, but this working did not destroy the tell-tale evidence of their origin.



Optical, microprobe and CT-scan images of Predynastic iron bead from the Nile Valley (credit: Open University)

This provenance tallies with the appearance in early New Kingdom hieroglyphs of the term biA-n-pt – literally iron-from-the-sky – which was adopted for smelted iron when first made in the 26 to 27th Dynasties. But pharaonic iron was not a poor relation of gold, regarded as flesh of the gods and hence featuring in the masks of Pharaohs such as Tutankhamen, but supposedly what their bones were made

from.

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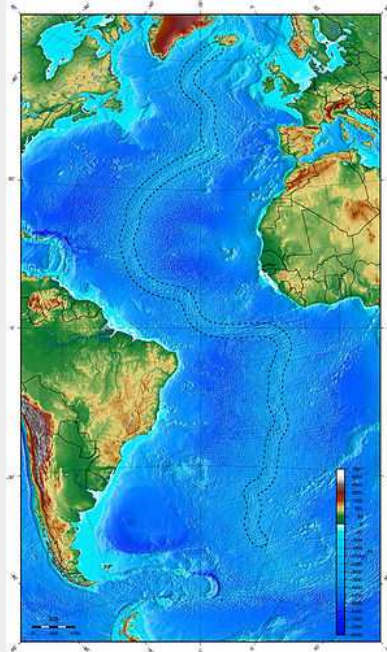
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Continental comfort blanket

Posted on [May 22, 2013](#) by [Steve Drury](#) | [Leave a comment](#)

Way back in the mists of time, say around 1970-71, an idea was doing the rounds that because the thermal conductivity of continental crust is lower than that of the ocean floor it should allow thermal energy to build up in the mantle beneath. In turn that might somehow encourage the formation of hot spots and a shallower depth to the asthenosphere: the outcome might be to encourage rifting of weakened lithosphere and ultimately a new round of sea-floor spreading. The case often cited was the Atlantic – North and South – since there are eight hotspots currently on the [mid-Atlantic ridge](#). Africa was another popularised case with a great many broad domes associated with Cenozoic volcanism, and the link between formation of the [East African Rift System](#), hot spots and doming had already been suggested. Africa has barely drifted for around 100 Ma and the domes were supposed to have formed by the build up of heat in the mantle beneath. Geoscience moved on to clearly demonstrate the coincidence of large igneous provinces and flood basalt volcanism with the initiation of Atlantic spreading in the form of the Central Atlantic and Brito-Arctic LIPs during initial opening of the South and North Atlantic at the end of the Triassic and during the Palaeocene respectively. But the role of continental insulation became a bit of backwater compared with notions of mantle plumes emanating at the core-mantle boundary. Well, it's back.



The Mid-Atlantic Ridge (credit: Wikipedia)

There is now a vast repository of ocean-floor lavas that formed at mid-ocean ridges in the past, thanks to the international Deep Sea and Ocean Drilling Programmes begun in 1968 about when the heyday of plate tectonics really got underway. In the last 45 years there have also been great advances in igneous geochemistry and its interpretation, including relations with mantle melting temperatures. Geochemists at the Friedrich-Alexander-Universiteit in Erlangen, Germany have re-examined the major-element geochemistry of 184 glassy ocean-floor basalts from drill sites of different ages on the floor of the Atlantic Ocean and compared them with 157 from the Pacific. To avoid the possible influence of plume-related heating, the sites were chosen well away from the tracks of existing hot spots.

Mantle temperature can be assessed from the sodium and iron content of basalts, Na decreasing with higher temperatures and Fe doing the reverse (Brandl, P.A. et al. 2013. High mantle temperatures following rifting cause by continental insulation. *Nature Geoscience*, v. 6, p. 391-394). Atlantic samples show increasing Na and decreasing Fe contents in progressively younger basalts, i.e. a trend with time of decreasing mantle temperature such that the oldest (~166 Ma) record 150°C higher mantle temperature than the youngest, with a similar result for the Indian Ocean floor. No such trend is present in samples from the same age range of the Pacific Ocean floor. At around 170 Ma the mid-Atlantic Ridge was close to the continental lithosphere of the Americas and Africa, whereas the East Pacific Rise was at least 2000 km from any continental margin. Younger Atlantic samples formed progressively further from its shores record cooling of the mantle source.

A prediction of the model is that the converse, continental accretion to form supercontinents such as Pangaea, should rapidly have caused considerable warming in the mantle beneath them. This suggests that the formation of supercontinents, or even less substantial continents, should carry the seeds of their re-fragmentation, as Africa is currently demonstrating by the separation of Arabia since the Red Sea began to open some 15 Ma ago, which Somalia and much of eastern Kenya and Tanzania seem destined to follow once the East African Rift System 'gets steam up'.

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Could the Toba eruption have affected migrating humans?

Posted on [May 9, 2013](#) by [Steve Drury](#) | [Leave a comment](#)

Around 73 thousand years ago a supervolcano in Sumatra erupted on a scale unprecedented in the last 2 million years. It left a 100 by 30 km elliptical caldera now occupied by Lake Toba, and explosively ejected 2800 of magma, about 800 km³ falling as ash as far afield as the Greenland ice cap. Although ice-core records show little if any sign of associated climate change in polar regions, the vast amount of ash and sulfate aerosols blasted into the stratosphere must have had some 'global winter' effect. Large areas of South Asia were blanketed by thick beds of ash. Human migration from Africa into Eurasia was probably underway at the time, indeed stone tools are found directly beneath and above the Toba ash in southern India and Malaysia. Some palaeoanthropologists have seen the stresses imposed by the Toba eruption as possible means of reducing the entire human population to a mere few thousand: a genetic 'bottleneck' that could have led to rapid evolution among surviving generations that may have shaped changes in human behaviour and culture.



Landsat image of Lake Toba, the largest volcanic crater lake in the world. (credit: Wikipedia)

There is a widening range of views on the climate changes that may have followed Toba. It has even been suggested that global mean surface temperature fell by as much as 10°C (Robock, A. et al. 2009. Did the Toba volcanic eruption of ~74 ka B.P. produce widespread glaciation? *Journal of Geophysical Research: Atmospheres*, v. **114**, DOI: 10.1029/2008JD011652), although not so far as to produce a worldwide glacial surge but sufficient to devastate vegetation. This bleak look back to a critical point in human affairs resulted from modeling of the effects of a global reflective cloud of ash and sulfate. A later modeling study factored in particle and aerosol sizes

(Timmreck, C. *et al.* 2010. Aerosol size confines climate response to volcanic super-eruptions. *Geophysical Research Letters*, v.**37**, doi:10.1029/2010GL045464) to give a less dramatic, but still severe maximum global cooling due to Toba of ~3.5°C.

The focus has now shifted from modelling to a more direct look at the environmental effects of the Toba super-eruption, preserved in sediments beneath Lake Malawi in southern Africa (Lane, C.S. *et al.* 2013. Ash from the Toba supereruption in Lake Malawi shows no volcanic winter in East Africa at 75 ka. *Proceedings of the National Academy of Science*, v. **110**, doi/10.1073/pnas.1301474110). The sediments contain a thin ash layer that is very different from those produced by East African Rift volcanism but chemically and texturally similar to the Toba ash from the Indian Ocean and India. The sediments, diatom fossils and chemical biomarkers immediately above the ash show little sign of a significant temperature fall. At most it records a 1.5°C fall, and the authors conclude little chance of a human genetic bottleneck among Africans living at the time.

There is clearly a conflict between results of modeling and real-world climatic data, which is interesting in its own right. But the Malawi findings do not rule out 'bottlenecks' resulting from severe stress in South Asia where the ash itself would have severely affected game and vegetation for long enough to face migrating human bands with the prospect of starvation. Obviously, some survived to move on and to leave their tools behind on top of the Toba Ash.

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Australopithecus sediba: is she or is she not a human ancestor?

Posted on April 22, 2013 by Steve Drury | [Leave a comment](#)



Australopithecus sediba 1 (MH1) left, *Au. afarensis*(AL 288-Lucy) centre and *Au. sediba* 2 (MH2) right. (credit: L. R. Berger, University of the Witwatersrand, via Wikipedia)

The remarkable find of two well-preserved skeletons of a 2 Ma hominin in a South African cave in 2008 and publication of their preliminary analysis in 2011 seemed set to shake up human origins research. There was a more or less complete hand – indeed an entire arm and shoulder – a lower leg with ankle bones, a near-complete head and lots more besides. Most was from one female individual, but significant bits from two others that allowed a well-supported reconstruction of the new species *Au. sediba*. The discoverer, [Lee Berger](#) of The University of the Witwatersrand, South Africa (well he initiated the dig, but his young son found the first critical material) is so excited 5 years on that he uses hip-hop phraseology, she 'got swag', presumably assuming that means pretty cool (Gibbons, A. 2013. A human smile and funny walk for *Australopithecus sediba*. *Science*, v. **340**, p. 132-133), but on the street there are other meanings and attitudes towards the phrase and unwary use is not advised.

More details now have emerged in a special issue of *Science* introduced by Berger in less fulsome language (Berger, L.R. 2013. The

mosaic nature of *Australopithecus sediba*. *Science*, v. **340**, p. 163). As the title suggests, the surprise lies in almost every critical part of the species. Although the spine shows curvature (lordosis) needed for an animal evolved from a quadruped to bipedality in order to balance when upright, the ankle bone is unlike the flat-based human one, being pointed as is that of chimpanzees. As a result walking would have involved an unusual and perhaps unsteady gait; the individuals did fall over into a death pit and one commentator thought the gait might have seemed 'provocative'. An unusual knee bone is thought to be an evolved countermeasure to such exaggerated mincing. Despite the very human-like hand, extremely long arms and shoulders remarkably like those of the favoured jacket of a star of the BBC series *The Dragons' Den* point to habitual clambering in trees. Authors of a report on dentition suggest a close similarity to that of the *Au. africanus*, living at the same time and also found in the same system of fossil-rich caves north-west of Johannesburg, South Africa. Controversially, the tooth team suggests a closer similarity of both to early *Homo* species than to earlier australopithecines in East Africa, which would shift the focus of human origins to southern Africa. Counter to that view is a find of 400 ka-older, putative human remains in Ethiopia. Yet they take the form of a lower jaw that resembles that of *Au. sediba*.

The emerging, more detailed picture is not tidy, as suspected from early examination of the Malapa hominins. One thing is for sure, the South African caves are being swarmed over, which paid dividends in 2011 just 15 km from the Malapa cave with another embarrassment of riches at Sterkfontein in the form of abundant foot bones of a currently un-named species of roughly the same age. Things are beginning to take on an element of national pride, with 'The Birthplace' at stake: Kenya, Tanzania, Ethiopia or South Africa?

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The Time Lords of Geology

Posted on April 16, 2013 by [Steve Drury](#) | [Leave a comment](#)



Time Lord, possibly outside the offices of the International Commission on Stratigraphy (credit: Sorcyress via Flickr)

Because it is the ultimate historical discipline, the essence of geology centres on time, measuring its passage and establishing correlations in time on a global scale so that an interlinked story of Earth evolution can be related. In fact geology is not just about a record of what happened in the four dimensions of place and time; it is a great deal more multidimensional, involving temperature, strain, chemistry, erosion, deposition, sea-level, the course of life and much more besides. Ever more multifaceted and, sadly, divided into subdisciplines and interfaces with other aspects of natural science that few if any individuals can grasp, an almost legally enforceable set of rules is needed to keep the order orderly. Unlike history and more akin to archaeology geological time is of two kinds,

its precisely quantitative measure being a relative newcomer.

Since it emerged in the Enlightenment since the late 17th century geology has been dominated by a relative sense of timing: Steno's Law of Superposition, and those relating to deformation, igneous eruptions, erosion and deposition first properly addressed by James Hutton being the most familiar. The notion of an absolute time scale into which events separated relative to one another could be fitted with confidence is a real latecomer. Although around since James Ussher, Archbishop of Armagh, reckoned from the first two chapters of Books of Genesis that everything began on Sunday 23 October 4004 BCE, the only useful and broadly believable approach to absolute time has been based on the decay of radioactive isotopes incorporated into minerals once they had formed within a rock. But that is no panacea for the simple reason that most of them form through igneous or metamorphic processes and only rarely in the course of sedimentation. It also has only become reliable and precise in the last two or three decades.

Tying together global records of all the kinds of process that have made, shaped and changed the Earth has therefore become an increasingly complex blend between local relative dating, burgeoning regional to global means of correlation and the odd point in absolute time. What has arisen is a dual system that, if truth were told, is often used in a cavalier fashion. Equally to the point, the rules have of late become unfit for purpose and are in need of revision, which is a task for the Time Lords, properly known as the International Commission on Stratigraphy (ICS). The trouble is, the rules have themselves evolved somewhat episodically while their subject is appropriately in continual motion and change, if not anarchic. To the outsider things can seem very odd indeed. Most reasonably well-read souls will have heard of the Cambrian and the Jurassic, largely because of the popularity of trilobites that blossomed in the one and dinosaurs that strutted the land in the other. What is less well known is that the two names have different usages as adjectives: one to signify an interval of time called a Period, the other a System of essentially piled-up sedimentary rocks.

There are greater dualisms that group the Period/System divisions: the largest Eon/Eonothem groupings of Archaean, Proterozoic and Phanerozoic; the Era/Erathem signifiers such as Palaeoproterozoic, Mesozoic and Cenozoic. Incidentally, the time between the formation of the Earth and the first palpable rocks, from about 4550 to 4000 Ma, has been called the Hadean but has no designated status, possibly because it has no rock record whatsoever. Divisions of Periods/Systems apply only to the time since fossils became abundant 541 Ma ago, and in order of fineness of division are Epoch/Series and Age/Stage. Example of the first can be Lower, Middle and Upper – to spice things up, Middle maybe omitted from some Periods/Systems – or they might be given names derived from type areas, such as the ever popular Llandovery at the base of the Silurian Period/System. Helpfully, the Cambrian contains Terreneuvian, Series 2, Series 3 and Furongian from early to late/bottom to top. The final global division has always floored undergraduates and shows little sign of relief – there are a great many Ages/Stages, in fact a round 100 (I may have miscounted), 98 with names, 2 currently unnamed and 4 in the Cambrian called Stages 2 to 5: confusing, that... has anyone spoken of the Stage 3 Stage or the Stage 5 Age of the Cambrian? Worryingly, in my hasty overview of the ICS International Stratigraphic Chart above I have reversed the official designation of chronostratigraphic/geochronological nomenclature: is this likely to have me committed to the geoscientific equivalent of Guantanamo Bay, or merely limbo?

I have by no means exhausted officialise. Readers may not be surprised to learn that the Time Lords have bent Heaven and Earth literally to concretise the *double entendres* of geology. The base of almost every Age/Stage in the Phanerozoic Eonothem/Eon is defined at a suitably agreed point on the ground by, in a few cases, a real golden spike (I may be mistaken on this, as the only one I tried to visit was at the base of a Welsh cliff suitable only to be visited by – in the timeless phrase – 'a strong party'). More prosaically there are monuments of various ethically appealing designs that go by the sonorous name Global Boundary Stratotype Section and Point. I have it on reasonably good authority that ICS delegates have, on occasion, needed to be physically restrained from huge fist fights over which nation shall host a particular GSSP (the 'B' in the acronym is aspirated).

This is the point that all readers will have been waiting for: it has been suggested to ICS that the whole edifice is looked at very closely

and perhaps revised (Zalasiewicz, J, *et al.* 2013. Chronostratigraphy and geochronology: A proposed realignment. *GSA Today*, v. **23** (March 2013), p. 4-8). For professionals this is an obligatory read, for others optional: there is no excuse as it is downloadable for free – click on the title. While you are about it, you can also download from GSA Today the famous proposal for an entirely new series/epoch called the Anthropocene (see also A sign of the times: the 'Anthropocene' in *EPN* issue of May 2011)

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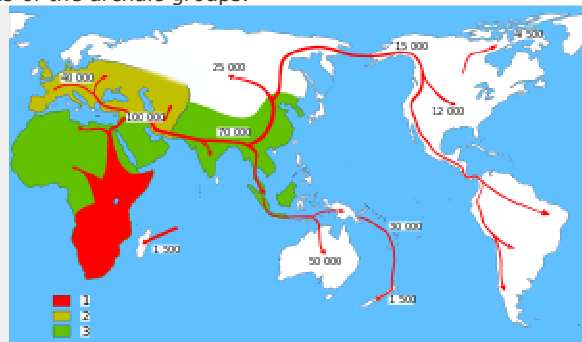
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Tagged Geology, International Commission on Stratigraphy, James Ussher, Time Lord

Hybridisation in human evolution

Posted on April 16, 2013 by Steve Drury | Leave a comment

A press release from the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, announces the completion of a genome from a third Neanderthal individual and its release to other anthropological researchers. Using a toe bone found in the same Siberian cave as the finger bone used to reconstruct the genome of a Denisovan, the new analysis is by far the most precise obtained from Neanderthal remains. For the first time it is possible to distinguish copies of the genes inherited by the individual from both parents. In that regard its quality is as good or even better than genomes from present-day humans. Svante Pääbo, lead scientist at the Institute, hopes that the team will now be able to more deeply penetrate aspects of the history of Neanderthals and Denisovans – the Denisovan genome is of a similar quality – and of the genetic divergence of anatomically modern humans from the common ancestors of all three. The data release coincided with a review of genetic evidence for interbreeding between early *Homo sapiens* and other species (Hammer, M.F. 2013. Human hybrids. *Scientific American*, v. **308** (May 2013), p. 52-57). Michael Hammer of the University of Arizona begins by comparing the main hypotheses for the evolution of fully modern humans. The Out-of-Africa model involves modern people of African origin completely replacing all other human species in and outside Africa. Multi-regional evolution posits archaic populations originally living in and outside Africa being gradually assimilated by migration and interbreeding that transferred modern traits everywhere yet retained some regionally distinct features of the archaic groups.



Modern human migration out of and within Africa relative to the domains of coeval archaic humans 1 = modern humans 2 = Neanderthals 3 = other archaic humans (credit: Wikipedia)

The first model clearly has to be modified as evidence accumulates for some degree of hybridisation with archaic groups outside Africa. The second of the two pre-genome ideas seemed to be rendered obsolete by the DNA evidence for significant interbreeding between early immigrants from Africa and Eurasian and Asian populations of earlier archaic migrants – Neanderthals and Denisovans respectively – whereas modern Africans show no sign of recent contact with these archaic groups. However, not all regions of the genome have been examined for signs of more universal hybridisation.

Hammer cites a 2005 study of DNA sequences in a non-functional region of the X chromosome that pointed towards its origin as far back as 1.5 Ma and entry into the modern genome in East Asia from a species of *Homo* that had entered the region far earlier than Neanderthals or Denisovans (perhaps *Homo erectus*). There is similar evidence for fertile interbreeding of modern humans with an archaic species in Africa. Together with the evidence for a degree of Neanderthal-modern interbreeding in the Middle East around 80 to 50 ka, some of whose descendants destined to reach Australasia interbred with Denisovans, probably further to the east, such reports clearly indicate a significant role for hybridisation.

As the source of all human species, Africa had the greatest chance of several of them living close-by at any one time and thus of interbreeding. Hammer and colleagues at the University of California, San Francisco report a 2 percent contribution of genetic material in three sub-Saharan modern populations from archaic humans split-off from them around 700 ka and recombined in moderns at about 35 ka. By chance Albert Perry, an African-American who chose to be genetically profiled commercially, found himself the possessor of a never-before recorded DNA variant in his Y chromosome. It was shown to have branched off the modern genetic tree almost 350 ka ago. His overall Y-chromosome DNA match was with men who live in a small area of Cameroon. Further complicating matters is evidence for a small Neanderthal component in the DNA of Maasai people living in East Africa.

Though still unpublished, fossil evidence unearthed in Nigeria and the Democratic Republic of the Congo of humans with cranial characteristics that bear both modern and archaic features. These are not early moderns but date back to about 13 ka. They imply either that there were still archaic humans cohabiting with moderns recently, or regular interbreeding had been going on for millennia further back in time. Hybridisation is emerging as a complicating factor in human evolution, and possibly one of great importance. It may have conferred immunity to pathogens endemic in new territories entered by modern migrants from Africa, and who is to say what other aspects of fitness? The once favoured Replacement model is looking shaky and will be refuted if more evidence emerges of viable hybridisation between various archaic humans and new arrivals from Africa. The African modern genetic pattern may dominate but the 'old ones' maintain a genetic foothold, despite their extinction. It always has to be borne in mind that all the modern genetic lines that emerged from Africa since about 100 ka probably did not survive either: those that did may have done so because they combined with significant traces of humans of much greater antiquity and owe their continuity to that legacy.