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# China—1NC

## 1NC

#### Chinese influence is increasing and replacing Mexico’s need for US involvement

Shahani ’13 – Arjan, “Chinese President Xi Jinping’s Visit to Mexico,” AQ, 6/5/13, <http://www.americasquarterly.org/chinese-president-xi-jinping-visit-to-mexico>

Slowly but surely, from a diplomatic standpoint, Mexico is taking steps to reestablish itself as an outspoken, independent and active player, and is engaging emerging and established world powers beyond its neighbor to the North. In April, Peña Nieto’s participation in the conference of the Boao Forum For Asia—a China-based forum similar to the World Economic Forum—and Chinese President Xi Jinping’s visit to Mexico this week are a clear example of Mexico’s global pivot. President Xi’s visit, foreshadows a stronger bilateral commercial and diplomatic relationship. Fox and Calderón did very little to maintain the strategic alliance that the PRI had built with China, and Calderón angered the Chinese government in 2011 when he received the Dalai Lama at the presidential residence. But now, officials from the federal government and representatives from the private sector involved in President Xi’s visit are predicting the launch of a strategic, integral and functional alliance between China and Mexico. They are not exaggerating: as agreements reached during the visit show, this is much more than Xi making a courtesy call. Amapola Grijalva, vice president of the Mexico-China Chamber of Commerce, told journalist Darío Celis in a June 3 radio interview that “agreements reached between the two delegations will help narrow the commercial balance gap between the countries, will open up a huge market for Mexican exporters, and will allow China to provide financing for important heavy infrastructure projects in the near future.” Grijalva estimates that “during Peña’s administration, up to $81 billion coming from China could go into financing new industrial naval port complexes, airports, telecom projects, and railway transportation systems.” A joint declaration signed and issued by Peña Nieto and Xi on June 4 summarizes the amount of work already invested in the renewed Mexico-China relationship. The two leaders signed memorandums of understanding to formally establish cooperation in energy, mining, emerging industries, infrastructure, private sector collaboration, university alliances, trade, banking, and even the oil industry. In addition, it was announced that sanitary measures have been met to reopen the Chinese market to pork from Mexico, and an agreement was reached to allow all forms of tequila into China. Additionally, to promote tourism in both countries, Peña Nieto and Xi expressed their mutual interest in expanding international flights connecting Mexico and China and in establishing a working relationship between their tourism ministries. In the political arena, Peña Nieto took the opportunity to amend Calderón’s diplomatic gaffe by ratifying the “One China” principle. Peña Nieto stated that it is Mexico’s position that both Taiwan and the Tibet are part of Chinese territory and Tibetan affairs are an internal issue for China. In the statement, both parties declared that “given the improvement of diverse mechanisms in the bilateral cooperation, the conditions are such that Mexico-China relations can be elevated to a new level of benefit to both nations.” They also established a calendar of working visits from high-level government officials to implement the agreements and scheduled future meetings during upcoming international forums including the UN, APEC and the G20. As President Xi’s visit shows, the coming years are certain to bring Mexico and China diplomatically closer and to catalyze economic growth, trade and development in a mutually beneficial way—while breaking Mexico’s trade dependency on the U.S. market.

#### China and Mexico cooperating on agriculture now

Chinese Ministry of Agriculture ‘12

(“Niu Dun Co-chairs 5th China-Mexico Agricultural Working Group meeting” April 5, 2012 <http://english.agri.gov.cn/ic/ao/201304/t20130412_19396.htm>)

China and Mexico held the 5th Agricultural Working Group (AWG) Meeting of China-Mexico Inter-governmental Standing Committee in Beijing on April 5, 2012. Vice Minister Niu Dun and Dr. Pedro Brajcich Gallegos, Director General of the Mexican National Institute of Forestry, Agriculture, and Livestock Research (INIFAP) of the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGAR) led their respective agricultural delegations to attend the Meeting. Initiated in 2004, the Inter-governmental Standing Committee aims at guiding and coordinating bilateral cooperation and reducing conflicts over trade and investment. Both sides reviewed and evaluated the progress in agricultural cooperation between China and Mexico. Both agreed that, with joint efforts, China-Mexico agricultural cooperation witnessed increasing number of mutual visits, smooth agricultural S&T exchange, and agricultural trade growth. Both sides recognized that in terms of future agricultural development and market demand, there is still greater potential for further cooperation. To this end, both sides expressed their willingness to make concerted efforts to tap cooperation potential based on mutual benefits and win-win outcomes. Both sides briefed their achievements in recent years, development plans for the years ahead and related agricultural policies. Both were of the view that the exchange of agricultural development and related policies is beneficial to drawing on advantages from each other and boosting agricultural development. Both agreed to facilitate the signing of Memorandum of Understanding on Agricultural Science and Technology Cooperation between INIFAP and the Chinese Academy of Agricultural Sciences (CAAS). The Memorandum aims to strengthen exchange and cooperation in the fields of prevention and control of animal and plant diseases and plant pests, climate change adaptation and agricultural bio-technology, germplasm exchange of corn, wheat, cotton, tobacco and other crops, as well as to hold the second Sino-Mexico Forum on Agricultural Science and Technology. The Meeting also reached consensus on an early signing of Agreement on Fishery Cooperation, inter alia to intensify cooperation in marine fishing, aquaculture, introduction of new species and fishery stock enhancement. Other issues discussed at the Meeting included creating favorable conditions for investment, granting appropriate preferential policies, and providing necessary service and facilitation measures so as to encourage and support eligible enterprises from both sides into agricultural trade and investment.

#### Engagement is zero-sum

Dowd ‘12

Alan Dowd, Senior Fellow with the American Security Council Foundation, 2012, “Crisis in the America's,” <http://www.ascfusa.org/content_pages/view/crisisinamericas>

Reengagement also means revitalizing security ties. A good model to follow might be what’s happening in China’s backyard. To deter China and prevent an accidental war, the U.S. is reviving its security partnerships all across the Asia-Pacific region. Perhaps it’s time to do the same in Latin America. We should remember that many Latin American countries—from Mexico and Panama to Colombia and Chile—border the Pacific. Given Beijing’s actions, it makes sense to bring these Latin American partners on the Pacific Rim into the alliance of alliances that is already stabilizing the Asia-Pacific region.¶ Finally, all of this needs to be part of a revived Monroe Doctrine.¶ Focusing on Chinese encroachment in the Americas, this “Monroe Doctrine 2.0” would make it clear to Beijing that the United States welcomes China’s efforts to conduct trade in the Americas but discourages any claims of control—implied or explicit—by China over territories, properties or facilities in the Americas. In addition, Washington should make it clear to Beijing that the American people would look unfavorably upon the sale of Chinese arms or the basing of Chinese advisors or military assets in the Western Hemisphere.¶ In short, what it was true in the 19th and 20th centuries must remain true in the 21st: There is room for only one great power in the Western Hemisphere.

#### Chinese influence in Latin America key to the global economy

Ellis 11

R. Evan, Assistant Professor of National Security Studies in the Center for Hemispheric Defense Studies at the National Defense University.Chinese Soft Power in Latin America, 1st quarter 2011, <http://www.ndu.edu/press/lib/images/jfq-60/JFQ60_85-91_Ellis.pdf>

Access to Latin American Markets. Latin American markets are becoming increasingly valuable for Chinese companies because they allow the PRC to expand and diversify its export base at a time when economic growth is slowing in traditional markets such as the United States and Europe. The region has also proven an effective market for Chinese efforts to sell more sophisticated, higher value added products in sectors seen as strategic, such as automobiles, appliances, computers and telecommunication equipment, and aircraft. In expanding access for its products through free trade accords with countries such as Chile, Peru, and Costa Rica, and penetrating markets in Latin American countries with existing manufacturing sectors such as Mexico, Brazil, and Argentina, the PRC has often had to overcome resistance by organized and often politically well-connected established interests in those nations. In doing so, the hopes of access to Chinese markets and investments among key groups of businesspeople and government officials in those nations have played a key role in the political will to overcome the resistance. In Venezuela, it was said that the prior Chinese ambassador to Venezuela, Zheng Tuo, was one of the few people in the country who could call President Chávez on the telephone and get an instant response if an issue arose regarding a Chinese company. Protection of Chinese Investments in and Trade Flows from the Region. At times, China has applied more explicit pressures to induce Latin America to keep its markets open to Chinese goods. It has specifically protested measures by the Argentine and Mexican governments that it has seen as protectionist: and, in the case of Argentina, as informal retaliation, China began enforcing a longstanding phytosanitary regulation, causing almost $2 billion in lost soy exports and other damages for Argentina.14 China has also used its economic weight to help secure major projects on preferential terms. In the course of negotiating a $1.7 billion loan deal for the Coco Coda Sinclair Hydroelectric plant in Ecuador, the ability of the Chinese bidder SinoHidro to self-finance 85 percent of the projects through Chinese banks helped it to work around the traditional Ecuadorian requirement that the project have a local partner. Later, the Ecuadorian government publicly and bitterly broke off negotiations with the Chinese, only to return to the bargaining table 2 months later after failing to find satisfactory alternatives. In Venezuela, the Chávez government agreed, for example, to accept half of the $20 billion loaned to it by the PRC in Chinese currency, and to use part of that currency to buy 229,000 consumer appliances from the Chinese manufacturer Haier for resale to the Venezuelan people. In another deal, the PRC loaned Venezuela $300 million to start a regional airline, but as part of the deal, required Venezuela to purchase the planes from a Chinese company.15 Protection of Chinese Nationals. As with the United States and other Western countries, as China becomes more involved in business and other operations in Latin America, an increasing number of its nationals will be vulnerable to hazards common to the region, such as kidnapping, crime, protests, and related problems. The heightened presence of Chinese petroleum companies in the northern jungle region of Ecuador, for example, has been associated with a series of problems, including the takeover of an oilfield operated by the Andes petroleum consortium in Tarapoa in November 2006, and protests in Orellana related to a labor dispute with the Chinese company Petroriental in 2007 that resulted in the death of more than 35 police officers and forced the declaration of a national state of emergency. In 2004, ethnic Chinese shopkeepers in Valencia and Maracay, Venezuela, became the focus of violent protests associated with the Venezuelan recall referendum. As such incidents increase, the PRC will need to rely increasingly on a combination of goodwill and fear to deter action against its personnel, as well as its influence with governments of the region, to resolve such problems when they occur.The rise of China is intimately tied to the global economy through trade, financial, and information flows, each of which is highly dependent on global institutions and cooperation. Because of this, some within the PRC leadership see the country’s sustained growth and development, and thus the stability of the regime, threatened if an actor such as the United States is able to limit that cooperation or block global institutions from supporting Chinese interests. In Latin America, China’s attainment of observer status in the OAS in 2004 and its acceptance into the IADB in 2009 were efforts to obtain a seat at the table in key regional institutions, and to keep them from being used “against” Chinese interests. In addition, the PRC has leveraged hopes of access to Chinese markets by Chile, Peru, and Costa Rica to secure bilateral free trade agreements, whose practical effect is to move Latin America away from a U.S.-dominated trading block (the Free Trade Area of the Americas) in which the PRC would have been disadvantaged.

#### Nuclear war

Harris and Burrows ‘9

(Mathew, PhD European History at Cambridge, counselor in the National Intelligence Council (NIC) and Jennifer, member of the NIC’s Long Range Analysis Unit “Revisiting the Future: Geopolitical Effects of the Financial Crisis” <http://www.ciaonet.org/journals/twq/v32i2/f_0016178_13952.pdf>, AM)

Of course, the report encompasses more than economics and indeed believes the future is likely to be the result of a number of intersecting and interlocking forces. With so many possible permutations of outcomes, each with ample Revisiting the Future opportunity for unintended consequences, there is a growing sense of insecurity. Even so, history may be more instructive than ever. While we continue to believe that the Great Depression is not likely to be repeated, the lessons to be drawn from that period include the harmful effects on fledgling democracies and multiethnic societies (think Central Europe in 1920s and 1930s) and on the sustainability of multilateral institutions (think League of Nations in the same period). There is no reason to think that this would not be true in the twenty-first as much as in the twentieth century. For that reason, the ways in which the potential for greater conflict could grow would seem to be even more apt in a constantly volatile economic environment as they would be if change would be steadier. In surveying those risks, the report stressed the likelihood that terrorism and nonproliferation will remain priorities even as resource issues move up on the international agenda. Terrorism’s appeal will decline if economic growth continues in the Middle East and youth unemployment is reduced. For those terrorist groups that remain active in 2025, however, the diffusion of technologies and scientific knowledge will place some of the world’s most dangerous capabilities within their reach. Terrorist groups in 2025 will likely be a combination of descendants of long established groups\_inheriting organizational structures, command and control processes, and training procedures necessary to conduct sophisticated attacks\_and newly emergent collections of the angry and disenfranchised that become self-radicalized, particularly in the absence of economic outlets that would become narrower in an economic downturn. The most dangerous casualty of any economically-induced drawdown of U.S. military presence would almost certainly be the Middle East. Although Iran’s acquisition of nuclear weapons is not inevitable, worries about a nuclear-armed Iran could lead states in the region to develop new security arrangements with external powers, acquire additional weapons, and consider pursuing their own nuclear ambitions. It is not clear that the type of stable deterrent relationship that existed between the great powers for most of the Cold War would emerge naturally in the Middle East with a nuclear Iran. Episodes of low intensity conflict and terrorism taking place under a nuclear umbrella could lead to an **unintended escalation** and broader conflict if clear red lines between those states involved are not well established. The close proximity of potential nuclear rivals combined with underdeveloped surveillance capabilities and mobile dual-capable Iranian missile systems also will produce inherent difficulties in achieving reliable indications and warning of an impending nuclear attack. The lack of strategic depth in neighboring states like Israel, short warning and missile flight times, and uncertainty of Iranian intentions may place more focus on preemption rather than defense, potentially leading to **escalating** **crises**. 36 Types of conflict that the world continues to experience, such as over resources, could reemerge, particularly if protectionism grows and there is a resort to neo-mercantilist practices. Perceptions of renewed energy scarcity will drive countries to take actions to assure their future access to energy supplies. In the worst case, this could result in interstate conflicts if government leaders deem assured access to energy resources, for example, to be essential for maintaining domestic stability and the survival of their regime. Even actions short of war, however, will have important geopolitical implications. Maritime security concerns are providing a rationale for naval buildups and modernization efforts, such as China’s and India’s development of blue water naval capabilities. If the fiscal stimulus focus for these countries indeed turns inward, one of the most obvious funding targets may be military. Buildup of regional naval capabilities could lead to increased tensions, rivalries, and counterbalancing moves, but it also will create opportunities for multinational cooperation in protecting critical sea lanes. With water also becoming scarcer in Asia and the Middle East, cooperation to manage changing water resources is likely to be increasingly difficult both within and between states in a more dog-eat-dog world.

# China—1NR

## Uniqueness—Mexico

#### China’s sphere of influence over Mexico high now – new agreements

Zeal ‘13– New, a reporter’s actual name, June 5, 2013, “The Encirclement Gathers Pace: China Enters Into a “Strategic Partnership” With Mexico,” http://beforeitsnews.com/opinion-conservative/2013/06/the-encirclement-gathers-pace-china-enters-into-a-strategic-partnership-with-mexico-2657822.html

Chinese President Xi Jinping and his Mexican counterpart Enrique Pena Nieto Tuesday announced to upgrade the bilateral relationship to a comprehensive strategic partnership. The Chinese president arrived in Mexico City earlier in the day for a three-day state visit aimed at lifting the China-Mexico strategic partnership to a higher level, and held talks with Pena Nieto on bilateral cooperation. During the talks, the two presidents agreed that strengthening the China-Mexico long-term friendly cooperation serves the fundamental interests of the two countries and two peoples, and helps promote unity and cooperation among developing countries. Xi said the decision to upgrade the bilateral relationship is a realistic requirement, and it also sets a clear target for the development of bilateral relations. Pena Nieto, for his part, said the upgrade of the Mexico-China ties indicates that bilateral cooperation has entered a new stage. The Mexican side is ready to work with China to constantly improve cooperation at higher levels and through more effective mechanisms so as to achieve common development, he said. The two heads of state agreed to push forward the China-Mexico comprehensive strategic partnership by working jointly in the following four aspects. Firstly, the two sides will view their relations from a strategic and long-term perspective and improve political mutual trust. The two countries will accommodate each other’s concerns, and show mutual understanding and support on issues concerning each other’s core interests. China and Mexico will maintain exchanges between high-level leaders, political parties and legislatures, give full play to the existing consultation and dialogue mechanisms, and improve coordination on each other’s development strategies. Secondly, the two sides will improve practical cooperation in accordance with their development strategies, and agree to increase mutual investment in key areas such as energy, mining, infrastructure and high technology. In order to promote trade balance, China supports the increase of imports from Mexico, while Mexico welcomes Chinese enterprises to invest here and promises to create favorable conditions for Chinese investors. Thirdly, as two major countries with rich cultural traditions, China and Mexico will improve cultural exchanges. Both countries will encourage more exchanges between art troupes, promote tourism and strengthen communication among students, academics, journalists and athletes. China will build a Chinese cultural center in Mexico City, the first in Latin America and the Caribbean, and Mexico will establish a Mexican cultural center in Beijing as well. Fourthly, China and Mexico will improve multilateral coordination based on their common interests and responsibilities on major international issues. The two countries will maintain close communication and coordination on global economic governance, energy security, food safety and climate change. They will help developing countries gain a bigger voice in the international community, and safeguard the common interests of the two countries and the developing nations. China and Mexico support the establishment of the China-Latin America forum and promote the overall cooperation between China and Latin America at a higher level. After their talks, Xi and Pena Nieto signed a joint statement between the two countries, witnessed the signing of a host of agreements and jointly met the press. Pena Nieto said at the ceremony that China has become a major global economic engine and an important balancing power in international relations. As two emerging powers, Mexico and China are each other’s important strategic cooperative partners, and the Mexican side is ready to forge closer ties with the Chinese side to achieve common development, the Mexican president said. China is ready to work with Mexico to constantly enrich the content of bilateral strategic partnership, promote mutually beneficial cooperation and contribute to world peace, stability and prosperity, he said. Xi said his visit to Mexico aims to deepen mutual trust, expand cooperation and enhance friendship. “I believe with our joint efforts, China-Mexico relations will enter a new stage,” he said. Latin America is rapidly becoming a Chinese sphere of influence. This latest development can only accelerate this unhealthy trend.

#### Chinese influence increasing – zero-sum with the US

Funaro ‘13 Breaking News writer in Los Angeles, “Xi flies to Mexico as China battles US for influence in Latin America,” Global Post, June 4, 2013 13:51, Online, http://www.globalpost.com/dispatch/news/regions/asia-pacific/china/130604/xi-flies-mexico-china-battles-us-influence-latin-ame

Chinese President Xi Jinping is making the most of his four-country tour of the Americas to position China as a competitor to the US and Taiwan's economic influence in the region. Xi arrives in Mexico Tuesday for a three-day visit in which he and Mexican President Enrique Peña Nieto are expected to discuss their economic ties. The two nations are economic partners but also competitors, particularly when it comes to exports to the United States. Mexico and China both enjoy strong exports to the American market but Mexico itself has been flooded with cheap Chinese goods that are displacing domestic goods. "China is a complicated case" for Mexico, Aldo Muñoz Armenta, political science professor at the Autonomous University of Mexico State told USA Today. "It's not the healthiest (relationship) in diplomatic terms because the balance of trade has been so unequal." When it comes to economic influence, China may be gaining the upper hand in Latin America.

#### China’s president is opening trade floodgates

Fox News Latino ’13 – “China's President Wants To Open The Floodgates Of Trade With Mexico”; June 2, 2013; <http://latino.foxnews.com/latino/money/2013/06/02/china-president-wants-to-open-floodgates-trade-with-mexico/>

Over the last few years, China has invested heavily in resource-rich Latin America, striking major trade deals with governments from Venezuela to Argentina.

And now the Asian power house is reaching out to Mexico, one of the few countries in the region where ties have been slow to develop

On Tuesday President Xi Jinping begins a three-day visit to the region just as Mexico debates opening its highly regulated energy sector to more foreign investment.

China's president has said he plans to address Mexico's large trade deficit with the Asian power and discuss ways to increase Mexican exports. Analysts say that could mean oil, which Mexico has and China needs to fuel its expanding economy and the cars of its growing middle class.

"Access to strategic raw materials is key to understanding the dynamic of relations with China," said Hugo Beteta, director for Mexico and Central America of the United Nations Economic Commission for Latin America and the Caribbean. "Clearly there is an interest by China in Mexican oil."

The trip is part of a four-country regional tour that ends in the United States. Xi started in Trinidad and Tobago, where he also met with leaders of other Caribbean countries, and he arrives Sunday night in Costa Rica.

China and Trinidad have had diplomatic ties for almost 40 years, and Trinidad is a major trading partner in the Caribbean for China. Costa Rica is the only country in Central America to have diplomatic relations with China.

U.S. trade still dwarfs China's for the three countries Xi is visiting. But China's trade with Costa Rica and with Mexico has tripled since 2006, according to the International Monetary Fund.

Relations with Mexico had been chilly in the past, especially when former President Felipe Calderon hosted the Dalai Lama in 2011, something China's Foreign Ministry said "hurt the feelings of the Chinese people and harmed Chinese-Mexican relations."

President Enrique Pena Nieto, who took office in December, has been aggressive so far about changing that, and the two new presidents reportedly hit if off on a personal level when Pena Nieto visited China and met with Xi in April. That resulted in an unusually quick diplomatic follow-up, just two months into Xi's presidency.

During the April talks, Xi said "he is committed to working with Mexican authorities to help Mexico export more," Mexico's vice minister of foreign relations, Carlos de Icaza, told The Associated Press.

That's key for Mexico, because its trade deficit with China is exploding, far surpassing that of any other Latin American nation.

While China is looking to assure supplies of raw materials, Mexico is looking to diversify its trade and investment, which have long been dominated by its superpower neighbor to the north.

"In the new global geopolitical and economic map, China is, and I think it has arrived to stay, the world's second economic power," De Icaza said. Mexico "has to understand and strengthen relations with a nation that has such great strategic value."

De Icaza said the countries hope to sign at least a dozen agreements in the fields of trade, energy, tourism, science and technology during Xi's visit.

Mexican exports to China came to a bit over $5.7 billion in 2012, while its imports from that country stood at almost $57 billion, according to statistics from Mexico's Economy Department. Cell phones, video games and parts for electronics factories have been pouring into Mexico, which sends China minerals such as copper and lead.

## Uniqueness—Perception

#### Perception frames the uniqueness debate

Ellis ‘13

Evan, professor of national security studies, modeling, gaming, and simulation with the Center for Hemispheric Defense Studies, Ph.D. in political science with a specialization in comparative politics, “Chinese Soft Power in Latin America,” China Culture, 2013-07-16; <http://www.chinaculture.org/info/2013-07/16/content_468445.htm>

In general, the bases of Chinese soft power differ from those of the United States, leading analysts to underestimate that power when they compare the PRC to the United States on those factors that are the sources of U.S. influence, such as the affinity of the world’s youth for American music, media, and lifestyle, the widespread use of the English language in business and technology, or the number of elites who have learned their professions in U.S. institutions.¶ It is also important to clarify that soft power is based on perceptions and emotion (that is, inferences), and not necessarily on objective reality. Although China’s current trade with and investment position in Latin America are still limited compared to those of the United States,3 its influence in the region is based not so much on the current size of those activities, but rather on hopes or fears in the region of what it could be in the future.¶ Because perception drives soft power, the nature of the PRC impact on each country in Latin America is shaped by its particular situation, hopes, fears, and prevailing ideology. The “Bolivarian socialist” regime of Hugo Chávez in Venezuela sees China as a powerful ally in its crusade against Western “imperialism,” while countries such as Peru, Chile, and Colombia view the PRC in more traditional terms as an important investor and trading partner within the context of global free market capitalism.¶ The core of Chinese soft power in Latin America, as in the rest of the world, is the widespread perception that the PRC, because of its sustained high rates of economic growth and technology development, will present tremendous business opportunities in the future, and will be a power to be reckoned with globally. In general, this perception can be divided into seven areas:■ hopes for future access to Chinese markets ■ hopes for future Chinese investment ■ influence of Chinese entities and infrastructure in Latin America ■ hopes for the PRC to serve as a counterweight to the United States and Western institutions ■ China as a development model ■ affinity for Chinese culture and work ethic ■ China as “the wave of the future.” In each of these cases, the soft power of the PRC can be identified as operating through distinct sets of actors: the political leadership of countries, the business community, students and youth, and the general population.

## Internal—Zero-Sum

#### China is expanding into LA as part of a zero-sum game because the US is disengaging there now

Frost April ‘09 (Patrick, “Latin America: Bush, China, & Obama,” Hello, I’m Patrick Frost the creator, writer, and host for GPP. I’m a Californian who has a BA in modern history, a MA in International Relations from NYU, write for Foreign Policy Association’s blog network, and have taught political science/international relations at San Diego City College, April 18, 2009; <http://greatpowerpolitics.com/?p=1282>)

The Bush administration’s track record in Latin America had its moments (Free trade agreements with Central America, Chile, and one with Colombia yet to be ratified, effective assistance in helping the Colombian state come close to defeating the FARC), but he rightly deserves criticism for a lack of attention to many of Latin America’s needs and wants. For instance, in his visits to the region he seemed to focus on global terrorism, when the leaders and peoples of the region were really concerned with economic growth and trade. The downside to this lack of attention was the growth of Chinese influence that can now be found in the region.¶ Beijing has effectively utilized its checkbook diplomacy with no strings attached to gain a strong foothold in many South American countries and in many ways this is a zero-sum game where US interests have been compromised. The Chinese have provided aid and loans in the billions of dollars to Venezuela, Brazil, and Argentina, securing oil shipments and political influence in return. This has come at a time when the US sponsored and controlled Inter-American Bank is losing money and appears to be struggling to maintain relevance, as Brazil has not even taken billions of dollars put in it for them alone. China’s money must seem welcoming to these South American powers as it comes from a far away power who demands less oversight and domestic changes in return for the financial resources.

#### It’s zero-sum – resources and geographic proximity

Valencia 6/24

Robert, Contributing Writer at Global Voices Online and the World Policy Institute, 6/24/13, “US and China: The Fight for Latin America,” http://www.worldpolicy.org/blog/2013/06/24/us-and-china-fight-latin-america

During the first weekend of June, U.S. President Barack Obama and Chinese President Xi Jinping met in California to discuss cyber espionage and territorial claims in the Pacific Rim. While tension on these topics has hogged the headlines, the fight for influence in another area could be even more important—Latin America. Other emerging markets in Africa, where China has an overwhelming influence due to foreign direct investment in mining and oil, also offer economic opportunities, but Latin America has an abundance of natural resources, greater purchasing power, and geographic proximity to the United States, which has long considered Latin America as its “backyard.”

The key question now is will Latin American countries lean more toward China or the United States, or will it find a way to balance the two against each other? Right now, Latin American countries are increasingly confident thanks to burgeoning economic and political integration by way of trading blocs, and they're demanding to be treated as an equal player.

As a sign of its growing importance, China and the United States have courted Latin America more than usual. In May, President Barack Obama visited Mexico and Costa Rica while Vice President Joe Biden visited Colombia, Brazil, and Trinidad and Tobago. Shortly after these trips, President Xi went to Mexico and Costa Rica to foster economic cooperation.

China’s active involvement in Latin American geopolitics can be traced back to 2009. Chinalco, China’s largest mining company, signed a $2.2 billion deal with Peru to build the Toromocho mine and a $70 million wharf in the Callao port. Since then, Peru has sent 18.3 percent of its exports to China, making China Peru’s largest trading partner. China’s imports to Peru, however, rank second with 13.7 percent of the market while the United States holds first place with 24.5 percent.

China has the upper hand with the Latin American leftist countries in terms of infrastructure and technology. In 2009, Chinese telephone manufacturer ZTE played an instrumental role in assembling the first mobile phone in Venezuela known as “El Vergatario” (Venezuela slang for optimal). Former President Hugo Chávez introduced this new phone to low-income families making it the world’s cheapest phone ($6.99 for a handset). Additionally, China landed rail construction projects in Argentina and Venezuela and has become a major buyer of farm products and metal in South America. Between 2011 and 2012, China purchased nearly 58.02 million tons of soy from Argentina, up from 52 million in 2011 and 2010.

## Link

#### China investing now – they need it, which means perception of US involvement triggers the link

Watts ‘13

(Elleka, Editorial Assistant at The Diplomat “Chinese Firms Go Global”

The Diplomat, May 31, 2013, <http://thediplomat.com/china-power/chinese-farms-go-global/>)

Already, as China has developed more of its land, concerns have developed over whether enough arable land will be available to produce enough food to feed its massive population. This problem has serious implications. As Katherine Morton, a specialist on Chinese environmental governance, notes: “Ten percent of the Chinese population is estimated to be undernourished, the rural labor force is declining, and agricultural productivity is increasingly vulnerable to climate change, natural disasters and water shortages.” She goes on to explain, “For planning purposes, China must have at least 120 million hectares of arable land to produce enough food to meet future demands. But around two-thirds of available land in China is now classified as either barren or low in agricultural potential…” Despite its long-standing policy of being agriculturally self-sufficient, the Chinese government has tried to cope with rising food insecurity by encouraging overseas investment in agricultural farms around the world, including in Mexico, Cuba, Russia, Kazakhstan, Cameroon, Uganda, Tanzania, Laos, the Philippines, and Australia. A 2012 report from the International Institute for Sustainable Development (IISD) examined China’s domestic and global agricultural investment strategies, and found that China is becoming increasingly dependent on agricultural imports. Indeed, the IISD report notes that soybeans have become China’s main imports, accounting for 38 percent of total agricultural imports, while other major agricultural imports include cotton (9 percent), and palm oil (8 percent). The majority of these imports come from Asia, North and South America, and Africa. Some Chinese farmers, like Zhu Zhangjin, believe this new trend of outsourcing will help strengthen food safety standards and improve quality, while lowering production costs and increasing profit margins. Zhu has followed other individual farmers, agribusiness corporations, and governments by buying huge tracts of land in countries like Brazil and Australia. While outsourcing agriculture has its benefits, as evident from the sheer number of countries pursuing this avenue, there are also many potential problems with transnational land investments. For the investor, these challenges include having to secure large plots of land in order to achieve economies of scales, high transportation costs, political unrest in recipient states, and hostility and resentment from local populations. Chinese investors have been no exception as they have encountered increasing hostility from local populations in purchasing land in areas like South America and Africa, including the charge that this new wave of outsourcing is the equivalent of “neocolonialism.” These allegations are inaccurate though, since neocolonialism involves a relationship whereby a state’s policy is influenced by the political, military, or economic leverage it exercises over an external actor. In the case of agricultural outsourcing, there is no loss of sovereignty in recipient countries – even if trade patterns resemble those in colonial times. As Deborah Brautigam, an expert on China-African relations and Director of the International Development Program at John Hopkin’s SAIS, explained in a recent interview with The Diplomat, observers accusing China of neocolonialism are using an “oversimplified idea of ‘neocolonialism’ – i.e. that China exports manufactured goods and imports raw materials. This structure of trade is accurate – but it’s a very narrow definition. Colonialism is about domination and political control, occupation and military force. This is hardly true of China in Africa.” Furthermore, charging China with neocolonialism absolves the governments in recipient countries of all blame. As Brautigam adds, “I think those who use this term fail to appreciate that African economies are already structured as raw material exporters. It is up to Africans themselves to develop other kinds of attractive export products.” Indeed, countries like Brazil have found ways to resist eager Chinese investment in its arable land by strengthening regulations on foreigners purchasing land. If other countries are opposed to the increasing attention they are receiving from international land investors, they too can pass laws to keep investors in check and focus on developing other export industries. Nonetheless, China has been proactive in devising ways to ensure that local populations benefit from its investment policies. As the IISD report cited above notes, “Acquiring farmland is one of the investment strategies that China is pursuing. But it is part of a much broader strategy that includes joint ventures with local governments or local companies and contracts with local farmers.” Locals are often able to benefit from the investment by continuing to work on the farms rather than being replaced by Chinese labor that is imported for specific projects. Furthermore, in many countries Chinese investment in land leads to sharp rises in its productivity due to the importation of modern technology and additional investments in key irrigation infrastructure. In some cases, Chinese investment in other types of infrastructure like roads and ports can expand these benefits to other local industries. Nevertheless, local grievances need to be considered and addressed when companies, states, and individuals invest in countries with rich, arable land. For instance, local farmers need to be fairly compensated if they are asked to move off land that is being used for transnational land investments. As mentioned above, local farmers should be given the option of continuing to work the land, and local food security should be guaranteed before any of the harvest is exported to other countries. In adopting these methods, investors can avoid charges of neocolonialism and the accompanying local hostility that puts investments at risk.

#### China investing in Mexican agriculture now

Sun ‘13

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China and Mexico will work together to safeguard each other's national interests and the interests of developing countries. President Xi Jinping's visit to Mexico shows the new Chinese leadership's support for Mexico's development and their will to expand and deepen cooperation. On Tuesday, Xi and his Mexican counterpart, Enrique Pena Nieto, pledged they will enhance political dialogue on bilateral, regional and global issues so as to consolidate the China-Mexico comprehensive strategic partnership. Since diplomatic ties were established 40 years ago, bilateral relations have developed rapidly. Confucius said, at 40 one should be free of doubts, and China-Mexico ties have matured and are now robust, featuring mutual respect and mutual benefit. And with Mexico's Institutional Revolutionary Party returning to power, China-Mexico relations can open a new chapter in their longstanding friendship. Mexico established diplomatic relations with China in 1972. At the 26th session of the UN General Assembly, seven Latin American and Caribbean countries, including Mexico, Trinidad and Tobago and Cuba voted that the government of the People's Republic of China was the only legitimate representative of China to the United Nations. In the 1970s and 1980s, China and Mexico cooperated in the international community supporting South-South cooperation in a bid to promote the establishment of a new international political and economic order. In 2003, the two countries forged a strategic partnership, expanding their friendly exchanges and cooperation in various fields. Both China and Mexico are emerging economies with increasingly close bilateral economic and trade relations and the two countries' influence on the global governance reform is irreplaceable. China is Mexico's second-largest trading partner, while Mexico is China's second-largest trading partner in Latin America. The two countries should take more political initiative and make pragmatic policy efforts to push relations to a new level. On issues concerning each other's core national interests, the two countries should enhance mutual understanding and properly handle their differences. And partisan politics in Mexico should not be allowed to have an adverse impact on the bilateral relationship. What concerns Mexico most is how to narrow the huge trade deficit with China. The trade imbalance is an indisputable fact mainly due to the differences in the two countries' economic structures. To solve the problem, the two sides should adopt a constructive attitude, put more political resources into their economic cooperation mechanism and improve the quality, level and sustainability of their economic and trade cooperation. Economic and trade cooperation is high on Mexico's agenda and the Mexican business community is eager to gain more market access to China, which is considering expanding imports of Mexico's competitive products, such as agricultural, livestock and fishery products. The two countries can also expand mutual investment. According to Chinese official statistics, at the end of 2011, China's investment in Mexico was only $264 million, which is less than its investment in some other Latin American countries. With regard to their economic and trade cooperation mechanism, the two countries can try to set up a China-Mexico cooperation fund to facilitate financing for mutual investment and trade. Mexico has great demand for investment in transportation, agriculture, communication networks and other areas, and China hopes to expand direct investment in Mexico, which will create employment opportunities for local people. The two sides can also consider starting a feasibility study on building a free trade area. Meanwhile, the Mexican government is actively promoting energy reform and the prospects for energy cooperation are bright. The two countries should also strengthen consultation and safeguard each other's national interests and the common interests of developing countries in the fields of finance, trade and climate change under the framework of multilateral mechanisms such as the United Nations, the G20, and the Asia-Pacific Economic Cooperation forum. They should also expand people-to-people exchanges and strengthen cultural and educational exchanges and contacts. Mexico has the most Confucius Institutes in Latin America and the National Autonomous University of Mexico has set up the Mexican Center in China. Cultural and academic exchanges between China and Mexico are frequent and the two sides may consider expanding the number of exchange students. In addition, the two countries should also strengthen public diplomacy to deliver a real and vivid national image to each other's people. Finally, relations between the two countries must take into account the United States. Because of the complex and asymmetrical interdependence between Mexico and the US, developing relations with the US is the top priority in Mexico's diplomacy. However, it is definitely not a zero-sum game, and the three countries can explore potential areas for future cooperation.

# Warming Defense

## 1NC/2NC

#### Multilat agreements don’t solve

Young et al 13

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Climate change

Gridlock exists across a range of different areas in global governance today, from security arrangements to trade and finance. This dynamic is, arguably, most evident in the realm of climate change. The diffusion of industrial production across the world—a process enabled by economic globalization—has created a situation in which the basic consumption of each individual directly affects the life chances of every other individual on the planet, as well as the life chances of future generations.

This is a powerful and entirely new form of global interdependence. Bluntly put, the future of our civilization depends on our ability to cooperate across borders. And yet, despite twenty years of multilateral negotiations under the UN, a global deal on climate change mitigation or adaptation remains elusive, with differences between developed countries, which have caused the problem, **and developing countries**, which will drive future emissions, forming the core barrier to progress. Unless we overcome gridlock in climate negotiations, as in other issue areas, we will be unable to continue to enjoy the peace and prosperity we have inherited from the postwar order.

There are, of course, several forces that might work against gridlock. These include the potential of social movements to uproot existing political constraints, catalysed by IT innovation and the use of associated technology for coordination across borders; the capacity of existing institutions to adapt and accommodate factors such as emerging multipolarity (the shift from the G-5/7 to the G-20 is one example); and efforts at institutional reform which seek to alter the organizational structure of global governance (for example, proposals to reform the Security Council or to establish a financial transaction tax).

Whether there is the political will or leadership to move beyond gridlock remains a pressing question. Social movements find it difficult to convert protests into consolidated institutional change. At the same time, the political leadership of the great power blocs appears dogged by national concerns: Washington is sharply divided, Europe is preoccupied with the future of the Euro and China is absorbed by the challenge of sustaining economic growth as the prime vehicle of domestic legitimacy. Against this background, the further deepening of gridlock and the continuing failure to address global collective action problems appears likely.

In the aftermath of the Second World War the institutional breakthroughs that occurred provided the momentum for decades of sustained economic growth and geopolitical stability sufficient for the transformation of the world economy, the shift from the Cold War to a multipolar order, and the rise of new communication and network societies.

However, what worked then does not work as well now, as gridlock freezes problem solving capacity in global governance. The search for a politics beyond gridlock, in theory and in practice, is a hugely significant task – nationally and globally – if global governance is to be once again both effective and fit for purpose.

#### Natural variability makes their ocean impacts inevitable

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(Gretchen E., “High-Frequency Dynamics of Ocean pH: A Multi-Ecosystem Comparison,” *PLoS ONE* Vol. 6, No. 12)

Since the publication of two reports in 2005–2006 [1], [2], the drive to forecast the effects of anthropogenic ocean acidification (OA) on marine ecosystems and their resident calcifying marine organisms has resulted in a growing body of research. Numerous laboratory studies testing the effects of altered seawater chemistry (low pH, altered pCO2, and undersaturation states - Ω - for calcium carbonate polymorphs) on biogenic calcification, growth, metabolism, and development have demonstrated a range of responses in marine organisms (for reviews see [3]–[8]). However, the emerging picture of biological consequences of OA – from data gathered largely from laboratory experiments – is not currently matched by equally available environmental data that describe present-day pH exposures or the natural variation in the carbonate system experienced by most marine organisms. Although researchers have documented variability in seawater carbonate chemistry on several occasions in different marine ecosystems (e.g., [9]–[15]), this variation has been under-appreciated in these early stages of OA research.

Recently, a deeper consideration of ecosystem-specific variation in seawater chemistry has emerged (e.g., [16]–[18]), one that is pertinent to the study of biological consequences of OA. Specifically, assessments of environmental heterogeneity present a nuanced complement to current laboratory experiments. The dynamics of specific natural carbonate chemistry on local scales provide critical context because outcomes of experiments on single species are used in meta-analyses to project the overall biological consequences of OA [7], [19], to forecast ecosystem-level outcomes [20], and ultimately to contribute to policy decisions [21] and the management of fisheries [22], [23]. As noted earlier [24], natural variability in pH is seldom considered when effects of ocean acidification are considered. Natural variability may occur at rates much higher than the rate at which carbon dioxide is decreasing ocean pH, about −0.0017 pH/year [25], [26]. This ambient fluctuation in pH may have a large impact on the development of resilience in marine populations, or it may combine with the steady effects of acidification to produce extreme events with large impacts [24]. In either case, understanding the environmental variability in ocean pH is essential.

Although data on the natural variation in the seawater CO2 system are emerging, nearly all high-resolution (e.g. hourly) time series are based on pCO2 sensors, with comparatively few pH time series found in the literature. From a research perspective, the absence of information regarding natural pH dynamics is a critical data gap for the biological and ecological arm of the multidisciplinary investigation of OA. Our ability to understand processes ranging from physiological tolerances to local adaptation is compromised. Specifically, laboratory experiments to test tolerances are often not designed to encompass the actual habitat exposure of the organisms under study, a critical design criterion in organismal physiology that also applies to global change biology [27]–[29]. It is noted that neither pH nor pCO2 alone provide the information sufficient to fully constrain the CO2 system, and while it is preferred to measure both, the preference for measuring one over the other is evaluated on a case-by-case basis and is often dictated by the equipment available.

In this light, data that reveal present-day pH dynamics in marine environments and therefore ground pH levels in CO2 perturbation experiments in an environmental context are valuable to the OA research community in two major ways. First, estimates of organismal resilience are greatly facilitated. Empiricists can contextualize lab experiments with actual environmental data, thereby improving them. Notably, the majority of manipulative laboratory experiments in OA research (including our own) have been parameterized using pCO2 levels as per the IPCC emission scenario predictions [30]. One consequence of this practice is that organisms are potentially tested outside of the current exposure across their biogeographic range, and tolerances are not bracketed appropriately. This situation may not be a lethal issue (i.e. negating all past observations in experiments where environmental context was not known); however, the lack of information about the ‘pH seascape’ may be translated through these organismal experiments in a manner that clouds the perspective of vulnerability of marine ecosystems. For example, recent data on the heterogeneity of pH in coastal waters of the Northeastern Pacific [31], [32] that are characterized by episodic upwelling has caused biologists to re-examine the physiological tolerances of organisms that live there. Specifically, resident calcifying marine invertebrates and algae are acclimatized to existing spatial and temporal heterogeneity [17], [18], and further, populations are likely adapted to local to regional differences in upwelling patterns [33].

Secondly, in addition to improving laboratory experiments, data regarding the nature of the pH seascape also facilitate hypothesis-generating science. Specifically, heterogeneity in the environment with regard to pH and pCO2 exposure may result in populations that are acclimatized to variable pH or extremes in pH. Although this process has been highlighted in thermal biology of marine invertebrates [34], such insight is not available with regard to gradients of seawater chemistry that occur on biogeographic scales. With that said, recent field studies have demonstrated that natural variation in seawater chemistry does influence organismal abundance and distribution [16], [35], [36]. With our newfound access to pH time series data, we can begin to explore the biophysical link between environmental seawater chemistry and resilience to baseline shifts in pH regimes, to identify at-risk populations as well as tolerant ones. Additionally, the use of sensors in the field can identify hidden patterns in the CO2 system, revealing areas that are refugia to acidification or carbonate undersaturation; such knowledge could enable protection, management, and remediation of critical marine habitats and populations in the future.

The recent development of sensors for in situ measurements of seawater pH [37], [38] has resulted in the ability to record pH more readily in the field in a manner that can support biological and ecological research. Since 2009, the Martz lab (SIO) has constructed 52 “SeaFET” pH sensors for 13 different collaborators (see http://martzlab.ucsd.edu) working in a broad range of settings. Using subsamples of data from many of these sensors, here we examine signatures of pH heterogeneity, presenting time series snapshots of sea-surface pH (upper 10 m) at 15 locations, spanning various overlapping habitat classifications including polar, temperate, tropical, open ocean, coastal, upwelling, estuarine, kelp forest, coral reef, pelagic, benthic, and extreme. Naturally, at many sites, multiple habitat classifications will apply. Characteristic patterns observed in the 30-day snapshots provide biome-specific pH signatures. This comparative dataset highlights the heterogeneity of present-day pH among marine ecosystems and underscores that contemporary marine organisms are currently exposed to different pH regimes in seawater that are not predicted until 2100.

Results

Overall, the patterns of pH recorded at each of the 15 deployment sites (shown in Figure 1, Table 1) were strikingly different. Figure 2 presents the temporal pattern of pH variation at each of these sites, and, for the sake of comparison, these are presented as 30-day time series “snapshots.” Note that all deployments generated >30 days of data except for sensors 3, 4, and 13, where the sensors were deliberately removed due to time constraints at the study sites. Though the patterns observed among the various marine ecosystems are driven by a variety of oceanographic forcing such as temperature, mixing, and biological activity, we do not provide a separate analysis of controlling factors on pH at each location. Each time series was accompanied by a different set of ancillary data, some rich with several co-located sensors, others devoid of co-located sensors. Given these differences in data collection across sites, here we focus on the comparative pH sensor data as a means to highlight observed pH variability and ecosystem-level differences between sites. For purposes of comparison, the metrics of variability presented here are pH minima, maxima, range, standard deviation, and rate of change (see Table 2). The rate presented in Table 2 and Figure 3 represents a mean instantaneous rate of change in pH hr−1, where a rate was calculated for each discrete time step as the absolute value of pH difference divided by the length of time between two adjacent data points.

In terms of general patterns amongst the comparative datasets, the open ocean sites (CCE1 and Kingman Reef) and the Antarctic sites (Cape Evans and Cindercones) displayed the least variation in pH over the 30-day deployment period. For example, pH range fluctuated between 0.024 to 0.096 at CCE1, Kingman Reef, Cape Evans, and Cindercones (Figure 2A, B and Table 2). In distinct contrast to the stability of the open ocean and Antarctic sites, sensors at the other five site classifications (upwelling, estuarine/near-shore, coral reef, kelp forest, and extreme) captured much greater variability (pH fluctuations ranging between 0.121 to 1.430) and may provide insight towards ecosystem-specific patterns. The sites in upwelling regions (Pt. Conception and Pt. Ano Nuevo, Figure 2C), the two locations in Monterey Bay, CA (Figure 2D), and the kelp forest sites (La Jolla and Santa Barbara Mohawk Reef, Figure 2F) all exhibited large fluctuations in pH conditions (pH changes>0.25). Additionally, at these 6 sites, pH oscillated in semi-diurnal patterns, the most apparent at the estuarine sites. The pH recorded in coral reef ecosystems exhibited a distinct diel pattern characterized by relatively consistent, moderate fluctuations (0.1<pH change<0.25; Figure 2E). At the Palmyra fore reef site, pH maxima occurred in the early evening (~5:00 pm), and pH minima were recorded immediately pre-dawn (~6:30 am). On a fringing reef site in Moorea, French Polynesia, a similar diel pattern was observed, with pH maxima occurring shortly after sunset (~7:30 pm) and pH minima several hours after dawn (~10:00 am). Finally, the greatest transitions in pH over time were observed at locations termed our “Extreme” sites - a CO2 venting site in Italy (site S2 in ref. [36]) and a submarine spring site in Mexico. For these sites, the patterns were extremely variable and lacked a detectable periodicity (Figure 2G).

The sites examined in this study do not comprehensively represent pH variability in coastal ecosystems, partly because we focused on surface epipelagic and shallow benthic pH variability. Many organisms that may be impacted by pH variability and ocean acidification reside at intermediate (>10 m) to abyssal depths. Notable regimes missing from Figure 2 include seasonally stratified open ocean locations that exhibit intense spring blooms; the equatorial upwelling zone; other temperate (and highly productive) Eastern Continental Boundary upwelling areas; subsurface oxygen minimum zones and seasonal dead zones; and a wide variety of unique estuarine, salt marsh, and tide pool environments. Spring bloom locations exhibit a marked increase in diel pCO2 variability during the peak bloom with a coincident drawdown similar in magnitude but opposite in sign to the upwelling signals shown in Figure 2 [39]. Equatorial upwelling locations undergo significant stochastic variability, as observed by pCO2 sensors in the TAO array (data viewable at http://www.pmel.noaa.gov/). Intertidal vegetated and tide pool habitats may exhibit major pH fluctuations due to macrophyte or animal respiratory cycles [15], while CO2 production in oxygen minimum zones can reduce pH to a limit of about 7.4 [40].

Due to local temperature differences, variable total alkalinity, and seasonal differences between deployment dates at each site, a comparison of average pH across the datasets would be somewhat misleading. However, some information can be gleaned from an examination of the averages: the overall binned average of all 15 mean values in Table 1 is 8.02±0.1. This pH value is generally in agreement with the global open ocean mean for 2010 of 8.07, a value generated by combining climatology data for temperature, salinity, phosphate, silicate [41]–[43], total alkalinity [44], and pCO2 [45] for the year 2000, corrected to 2010 using the average global rise of 1.5 µatm pCO2 yr−1. Rather than make a point-by-point comparison of the mean pH of each dataset, we focus instead on the differences in observed variability amongst the sites. For this analysis, summary statistics of the comparative datasets were ranked in order to examine the range of variability across all 15 sites (Fig. 3).

Discussion

Collected by 15 individual SeaFET sensors in seven types of marine habitats, data presented here highlight natural variability in seawater pH. Based on Figure 3, it is evident that regions of the ocean exhibit a continuum of pH variability. At sites in the open ocean (CCE-1), Antarctica, and Kingman reef (a coastal region in the permanently stratified open Pacific Ocean with very low residence times, and thus representative of the surrounding open ocean water), pH was very stable (SD<0.01 pH over 30 days). Elsewhere, pH was highly variable across a range of ecosystems where sensors were deployed. The salient conclusions from this comparative dataset are two-fold: (1) most non-open ocean sites are indeed characterized by natural variation in seawater chemistry that can now be revealed through continuous monitoring by autonomous instrumentation, and (2) in some cases, seawater in these sites reaches extremes in pH, sometimes daily, that are often considered to only occur in open ocean systems well into the future [46]. Admittedly, pH is only part of the story with regard to the biological impacts of OA on marine organisms. However, continuous long-term observations provided by sensors such as the SeaFET are a great first step in elucidating the biophysical link between natural variation and physiological capacity in resident marine organisms.

In the end, knowledge of spatial and temporal variation in seawater chemistry is a critical resource for biological research, for aquaculture, and for management efforts. From a biological perspective, the evolutionary history of the resident organisms will greatly influence the adaptation potential of organisms in marine populations. Thus, present-day natural variation will likely shape capacity for adaptation of resident organisms, influencing the resilience of critical marine ecosystems to future anthropogenic acidification. Below we discuss the comparative SeaFET-collected data and, where applicable, the biological consequences of the temporal heterogeneity that we found in each of the marine ecosystems where sensors were deployed.

As the most stable area, the open ocean behaves in a predictable way and generally adheres to global models attempting to predict future CO2 conditions based on equilibration of the surface ocean with a given atmospheric pCO2 (e.g. [47]). This can be shown with longer-term pH records obtained with SeaFET sensors, which are available at the CCE-1 mooring (Fig. 4). The ambient pH values for this open ocean location can be predicted to better than ±0.02 from the CO2-corrected climatology mentioned above; pH has dropped by about 0.015 units since 2000. At CCE-1, the annual carbonate cycle followed the sea surface temperature cycle, and pH was driven mostly by changes in the temperature dependence of CO2 system thermodynamics (Figure 4). SeaFET observations at CCE-1 agree with the climatology to +0.017±0.014 pH units, with episodic excursions from the climatology but a general return to the climatological mean. Although the annual cycle in the open ocean is somewhat predictable, it is notable that even at these seemingly stable locations, climatology-based forecasts consistently underestimate natural variability. Our observations confirm an annual mean variability in pH at CCE-1 of nearly 0.1, suggest an inter-annual variability of ~0.02 pH, and capture episodic changes that deviate from the climatology (Figure 4). Similar underestimates of CO2 variability were observed at nine other open ocean locations, where the Takahashi pCO2 climatology overlaps PMEL moorings with pCO2 sensors (not shown). Thus, on both a monthly (Fig. 2) and annual scale (Fig. 4), even the most stable open ocean sites see pH changes many times larger than the annual rate of acidification. This natural variability has prompted the suggestion that “an appropriate null hypothesis may be, until evidence is obtained to the contrary, that major biogeochemical processes in the oceans other than calcification will not be fundamentally different under future higher CO2/lower pH conditions” [24].

Similarly, the sensors deployed on the benthos in the Antarctic (Cindercones and Cape Evans, Figure 2B) recorded relatively stable pH conditions when compared to other sites in the study. Very few data exist for the Southern Ocean; however, open-water areas in this region experience a strong seasonal shift in seawater pH (~0.3–0.5 units) between austral summer and winter [48], [49] due to a decline in photosynthesis during winter and a disequilibrium of air-sea CO2 exchange due to annual surface sea ice and deep water entrainment [50]. Given the timing of deployment of our sensor in McMurdo Sound (austral spring: October–November), the sensor did not capture the change in seawater chemistry that might have occurred in the austral winter [49]. In general, due to sea ice conditions, observations from the Southern Ocean are limited, with water chemistry data falling into two categories: (1) discrete sampling events during oceanographic cruises (e.g. US Joint Global Ocean Flux Study, http://www1.whoi.edu/) and (2) single-point measurements from locations under sea ice [49], [51], [52]. Biologically speaking, the Southern Ocean is a region expected to experience acidification and undersaturated conditions earlier in time than other parts of the ocean [47], and calcifying Antarctic organisms are thought to be quite vulnerable to anthropogenic OA given the already challenging saturation states that are characteristic of cold polar waters [53]–[56]. Short-term CO2 perturbation experiments have shown that Antarctic calcifying marine invertebrates are sensitive to decreased saturation states [51], [57], although the number of species-level studies and community-level studies are very limited. The Western Antarctic Peninsula and the sub-Antarctic islands will experience pronounced increases in temperature [54] and could consequently undergo more variation and/or undersaturation given the increased potential for biological activity. Importantly, depending on the patterns of seasonally-dependent saturation state that will be revealed with improved observations [58], Antarctic organisms may experience more variation than might be expected, a situation that will influence their resilience to future acidification.

Three other types of study sites – the coastal upwelling, kelp forest and estuarine/near-shore sites – all exhibited variability due to a combination of mixing, tidal excursions, biological activity, and variable residence time (Fig. 2). Although these sites are all united by fairly obvious heterogeneity in pH, organisms living in these areas encounter unique complexities in seawater chemistry that will influence their physiological response, resilience, and potential for adaptation.

Typically, estuarine environments have riverine input that naturally creates very low saturation states [59]–[61]. Seawater chemistry conditions in these areas often shift dramatically, challenging biogenic calcification by resident organisms. Additionally, these species must also tolerate abiotic factors that interact with pH, such as temperature [62]. Two sensors in the Monterey Bay region, L1 (at the mouth of Elkhorn Slough) and L20 (~2 km seaward and north of L1), recorded rapid changes in pH. However, as opposed to riverine input, the low pH fluctuations observed here are likely due to isopycnal shoaling or low CO2 water that is pulsing up to the near shore on internal tides. These locations may also experience high river run-off in the rainy season, but such conditions were not reflected in the time series shown in Fig. 2.

Organisms living in upwelling regions may be acclimatized and adapted to extremes in seawater chemistry; here, deep CO2-enriched waters reach the surface and may shoal onto the benthos on the continental shelf [31], [32]. Data collected from our upwelling sites support the patterns found by cruise-based investigations; pH fluctuations were often sharp, and large transitions of up to ~0.35 pH units occurred over the course of days (Fig. 2). Laboratory studies on calcifying marine invertebrates living in upwelling regions suggest that these organisms maintain function under such stochastic conditions. However, overall performance may be reduced, suggesting that these species are indeed threatened by future acidification [17], [18], [63].

For kelp forests, although there is less influence from riverine inputs, pH variation is quite dynamic at these sites in the coastal California region (Fig 2; [18]). Patterns here are likely driven by fluctuations in coastal upwelling, biological activity, currents, internal tides, seasonally shoaling isopleths, as well as the size of the kelp forest, which may influence residence times via reduced flow. Kelps may respond positively to increased availability of CO2 and HCO3−, which may allow for reduced metabolic costs and increased productivity [64]. Increased kelp production may elevate pH within the forest during periods of photosynthesis, causing wider daily fluctuations in pH, though this is speculative at this time. As a result, kelp forests, particularly those of surface canopy forming species such as Macrocystis pyrifera, may contain a greater level of spatial heterogeneity in terms of the pH environment; vertical gradients in pH may form due to enhanced levels of photosynthesis at shallower depths. Such gradients may increase the risk of low pH exposure for benthic species while buffering those found within the surface canopy. Kelp forests provide habitat to a rich diversity of organisms from a wide range of calcifying and non-calcifying taxa [65]. As with organisms from the other coastal locations (estuarine and upwelling), the biota living within kelp forest environments are most likely acclimatized to this degree of natural variation. However, continued declines in oxygenation and shoaling of hypoxic boundaries observed in recent decades in the southern California bight [66], [67] are likely accompanied by a reduction in pH and saturation state. Thus, pH exposure regimes for the coastal California region's kelp forest biota may be changing over relatively short time scales. Over longer temporal scales as pH and carbonate saturation levels decrease, the relative abundances of these species may change, with community shifts favoring non-calcified species, as exemplified by long-term studies in intertidal communities by Wootton et al. [15].

For all the marine habitats described above, one very important consideration is that the extreme range of environmental variability does not necessarily translate to extreme resistance to future OA. Instead, such a range of variation may mean that the organisms resident in tidal, estuarine, and upwelling regions are already operating at the limits of their physiological tolerances (a la the classic tolerance windows of Fox – see [68]). Thus, future acidification, whether it be atmospheric or from other sources, may drive the physiology of these organisms closer to the edges of their tolerance windows. When environmental change is layered upon their present-day range of environmental exposures, they may thereby be pushed to the “guardrails” of their tolerance [20], [68].

In contrast to more stochastic changes in pH that were observed in some sites, our coral reef locations displayed a strikingly consistent pattern of diel fluctuations over the 30-day recording period. Similar short-term pH time series with lower daily resolution [69], [70] have reported regular diel pH fluctuation correlated to changes in total alkalinity and oxygen levels. These environmental patterns of pH suggest that reef organisms may be acclimatized to consistent but moderate changes in the carbonate system. Coral reefs have been at the center of research regarding the effects of OA on marine ecosystems [71]–[73]. Along with the calcification biology of the dominant scleractinian corals and coralline algae, the biodiversity on coral reefs includes many other calcifying species that will likely be affected [74]–[77]. Across the existing datasets in tropical reef ecosystems, the biological response of calcifying species to variation in seawater chemistry is complex (see [78]) –all corals or calcifying algal species will not respond similarly, in part because these calcifying reef-builders are photo-autotrophs (or mixotrophs), with algal symbionts that complicate the physiological response of the animal to changes in seawater chemistry.

Finally, the “Extreme” sites in our comparative dataset are of interest in that the low pH levels observed here represent a natural analogue to OA conditions in the future, demonstrating how the abundance and distribution of calcifying benthic organisms, as well as multi-species assemblages, can vary as a function of seawater chemistry [16], [35], [36], [79]. The variability in seawater pH was higher at both the groundwater springs off the coast of Mexico and the natural CO2 vents off the coast of Italy than at any of the other sensor locations. Offshore of Puerto Morelos, Mexico (and at other sites along the Mesoamerican Reef), natural low-saturation (Ω~0.5, pH 6.70–7.30, due to non-ventilated, high CO2, high alkalinity groundwater) submarine springs have been discharging for millennia. Here, variability in pH is due to long-term respiration driving a low ratio of alkalinity to dissolved inorganic carbon in effluent ground water. These sites provide insight into potential long-term responses of coral backreef ecosystems to low saturation conditions [79]. Unlike Puerto Morelos, the variability of pH at volcanic CO2 vents at Ischia, Italy is almost purely abiotically derived, due entirely to CO2 venting and subsequent mixing. This site in the Mediterranean Sea hosts a benthic assemblage that reflects the impacts of OA on rocky reef communities [16], [36].

Overall, the ‘extreme’ systems provide an opportunity to examine how variability in pH and extreme events (sensu [80]) affects ecological processes. Knowledge of this biophysical link is essential for forecasting ecological responses to acidification in ecosystems with sharp fluctuations in pH, such as upwelling or estuarine environments. Despite reductions in species richness, several calcifying organisms are found in low pH conditions close to the vents [16] and the springs [79]. The persistence of calcifying organisms at these extreme sites, where mean pH values are comparable to those that have reduced organism performance in laboratory experiments (i.e., pHT 7.8; reviewed in [16]), suggest that long exposures to such variability in pH, versus a consistently low-pH environment, could play an important role in regulating organism performance. Variability in pH could potentially promote acclimatization or adaptation to acidification through repeated exposure to low pH conditions [24]; alternatively, transient exposures to high pH conditions could buffer the effects of acidification by relieving physiological stress. Thus, the ecological patterns coupled with the high fluctuations in pH at the extreme sites highlight the need to consider carbonate chemistry variability in experiments and models aimed at understanding the impacts of acidification.

#### Leadership doesn’t solve

Loris 13 (An economist specializing in energy and environmental issues, Nicolas Loris is the Heritage Foundation’s Herbert and Joyce Morgan Fellow., 1/30/2013, "No 'Following the Leader' on Climate Change", www.heritage.org/research/commentary/2013/1/no-following-the-leader-on-climate-change)

In his second inaugural address, President Obama pledged that the United States “will respond to the threat of climate change” and will take the lead for other countries to follow suit. This commitment is a willful rejection of reality. Congress has been unwilling to address climate change unilaterally through legislation. Multilateral attempts become more futile each year as major players, especially developing nations such as China and India, refuse to play ball. And why should they? Developing nations are not going to curb economic growth to solve a theoretical problem when their citizens face far more pressing environmental problems — especially when so many are trapped in grinding poverty and lack access to reliable electricity. This leaves the president with only one option for making good on his pledge: impose costly regulatory actions. This approach would be as pointless as unilateral legislative action. Why? Even accepting as fact the theory that Earth is warming and that carbon dioxide and other greenhouse gas emissions are a warming agent does not make any of the following true: &bull; Man-made emissions are driving climate change and are a negative externality that needs to be internalized. Greenhouse gas emissions are a warming agent. But that fact doesn’t begin to settle the scientific debate about climate change and climate sensitivity — the amount of warming projected from increased greenhouse gas emissions. Moreover, viewing man-made carbon dioxide as a strictly negative externality ignores a lot of peer-reviewed literature that identifies many positive effects (e.g., plant growth, human longevity, seed enrichment and less soil erosion as a result of more robust tree root growth) associated with higher levels of CO2 in the atmosphere. • Earth is cooking at a catastrophic rate. The media breathlessly reported that a recent National Oceanic and Atmospheric Administration’s study found 2012 to be the warmest on record for the continental United States. What they largely failed to report was that, globally, 2012 was only the ninth-warmest in the past 34 years. In fact, average global temperatures have leveled off over the past decade and a half. • Sea levels will rise dramatically, threatening America’s coastlines. The Intergovernmental Panel on Climate Change report, the bible of CO2-reduction proponents, projects sea levels rising 7 inches to 23 inches over the next century. That’s not as alarming as it sounds. Sea level has risen at the lower end of that projection over the past two centuries. • There will be more extreme droughts, heat waves, hurricanes and other natural disasters. Natural disasters (they’re called “natural” for a reason, right?) will occur with or without increased man-made emissions. Having failed repeatedly to win legislation limiting greenhouse gas emissions, the Obama administration appears bent on taking the regulatory route. The Environmental Protection Agency is promulgating stringent emission standards for new power plants that would effectively prohibit construction of coal-fired generators and prematurely shut down existing plants. The EPA also has introduced costly new air-quality standards for hydraulically fractured wells and new fuel-efficiency standards that will make cars and light-duty trucks more expensive, smaller and less safe. Restricting greenhouse gas emissions, whether unilaterally or multilaterally, will impose huge costs on consumers and the U.S. economy as a whole. Congress should exercise its seldom-used muscles as regulatory watchdog to keep regulatory proposals that are not cost-effective from full implementation and reverse the administration’s course on regulating CO2. As for the president’s suggestion that unilateral action by the U.S. will somehow inspire other countries to emulate our example — the repeated failure of U.N. negotiations to produce multilateral climate action demonstrates a near universal disinclination to sacrifice economic growth on the altar of global warming. President Obama should respond to the threat of climate change by acknowledging that the severity of the threat is low and the costs of action are painfully high. And that unilateral action by the United States won’t make a dent in Earth’s temperature anyway.