# AC

## 1 – FW

#### The standard is maximizing expected wellbeing.

#### Prefer:

#### 1] Governments have to use util because they can only understand averages and aggregates, only knowing what is best for the most amount of people. Policymakers aren’t philosophers.

#### 2] Extinction outweighs – it’s the worst impact and is irreversible. We can’t achieve any other frameworks if we are all dead, nor can we improve society.

#### 3] Other standards collapse because they always strive to achieve something that ends up producing pleasure and is good for society, which is util.

#### 4] Pain and pleasure are intrinsically valued and disvalued – we will take our hand off a hot stove.

#### 5] Only consequences can explain degrees of wrongness. Breaking a promise to meet up for lunch is worse than to take a dying person to a hospital – only consequences explain that.

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## 2 – Africa

#### New investments coming and companies are launching – economic incentives make it alluring

**Tosar 20** [(Borja Tosar, reporter) “Asteroid Mining: A New Space Race,” OpenMind BBVA, May 18, 2020, <https://www.bbvaopenmind.com/en/science/physics/asteroid-mining-a-new-space-race/>]

This is not science fiction. **There are now space mining companies, such as**[**Planetary Resources,**](https://www.consensys.space/pr)**which has already launched several mini-satellites to test several of its patents.** **Other companies** like [Asteroid Mining Corporation](https://asteroidminingcorporation.co.uk/) or [Trans Astronautica Corporation,](https://www.transastracorp.com/) although still far from their goal, **are already attracting millions of dollars of private investment interested in being on the front line of a possible future space business.** Is asteroid mining possible? This new space race already began back when the Hayabusa missions successfully returned a few grams of an asteroid’s regolith, so **the technology to harvest asteroid material exists, we just have to change the scale.** It is no longer a technological problem. Is it economically viable? **We are increasingly dependent on rare elements** (such as those in the palladium group), **which are expensive to exploit on Earth** **and come with a high environmental cost, so the sum of these two factors could make it profitable to travel to the asteroids to extract these raw materials.** Astrophysicist Neil deGrasse argues that [the planet’s first trillionaire will undoubtedly be a space miner.](https://www.cnbc.com/2015/05/01/build-the-economy-here-on-earth-by-exploring-space-tyson.html)

#### Africa mining is growing despite hinderances – it’s critical for the African economy but private space mining decks it.

Oni 19 [(David, a space industry and technology analyst at Space in Africa. He’s a graduate of Mining Engineering from the Federal University of Technology Akure.) “The Effect of Asteroid Mining on Mining Activities in Africa,” Africa News, 9/24/19, <https://africanews.space/the-effect-of-asteroid-mining-on-mining-activities-in-africa/>]

In terms of mineral resources, **Africa has the most abundant of reserves. Currently, Africa hosts 30% of the world’s mineral reserve, 55% of the world’s diamond comes from Botswana and Congo, 60% of the mining in Africa is gold mining but to mention a few.** Given that **the mining industry is consistently rising across sub-Saharan Africa, it is good news for the African mining sector as mining companies are beginning to expand operations, countries are already looking into improving regulatory frameworks that will enhance activities and also attract more investors.** But recent breakthroughs in space technology have led to many space scientists and engineers looking to explore alternatives to sustaining the earth while generating massive revenue and improving life generally. Currently, there are various comprehensive research documents on the Space Mining market, with detailed insights on growth factors and strategies. **With** the current advances and cutting edge technologies developed in preparation for the first stages of **asteroid mining, one might want to ask if it is indeed good news for the African continent.** Apart from the environmental impacts, major mining activities are largely hindered in Africa by a handful of other factors such as access to energy, health and safety volatility of commodity prices, etc. Other issues such as political uncertainty, economic instability, religious and tribal wars, industrial unrest, and the fickle nature of regulatory bodies have also rendered foreign direct investment increasingly unattractive to global investors. Furthermore, most African countries have a relatively undeveloped infrastructure for exploiting resources effectively. At the moment, **Asteroid mining** poses no threat to terrestrial mining; however, this will not hold for long. The space industry is progressing at such a rapid pace, and the prospects are unequivocally mouth-watering. The big question is, will asteroid mining lure away investors in Africa? The planetary resources company estimates that **a single 30-m asteroid may contain 30 billion dollars in platinum alone and a 500m rock could contain half the entire world resources of PGM. Considering the abundance** of minerals in asteroids, once asteroid mining materialises, it will severely affect the precious metals market, usurp the prices of rare earth minerals, and a whole lot more because **minerals that are usually somewhat scarce on earth will be easily accessible on asteroids.** While foreign investors run the majority of the large-scale mining activities in the region, **reports say that many African countries are** dangerously dependent on mining activities. For some African countries, despite massive mineral wealth, their mining sectors are underdeveloped, and this is as a result of much focus on oil resources and a couple of other challenges. The million-dollar question is, what will become of the mining activities in Africa?

#### **Economic decline means Africa war**

Tollefsen 17 [(Andreas Forø, Peace Research Institute Oslo (PRIO) and Ph.D. in Human Geography from the University of Oslo) “Experienced poverty and local conflict violence," Conflict Management and Peace Science, 12/21/17, <https://www.researchgate.net/publication/320740608_Experienced_poverty_and_local_conflict_violence>]

Civil **wars are** more frequent than any other type of conflict **in the modern era, with the majority occurring in** low-income countries (Hegre and Sambanis, 2006; Jakobsen et al., 2013). While **most country-level studies find that poverty and inadequate economic development increase the risk of conflict**—a relationship that appears to be causal(Braithwaite et al., 2016)—we lack consensus on the precise mechanisms driving this phenomenon (Justino, 2009). **Researchers have explained a correlation between low GDP per capita and conflict** using diverse hypotheses, including lowered opportunity costs for individuals to rebel (Collier et al., 2009) and responses to a state’s weak capacity (Fearon and Laitin, 2003). However, as argued by Hegre (2016), development’s highly correlated indicators make it difficult to distinguish between the theoretical mechanisms underlying the development– conflict nexus. Moreover, previously proposed models often represent processes operating on various geographical scales at individual, group, and state levels. Few researchers have backed up theoretical expectations with data at scientifically fitting levels of analysis, consequently ignoring intra-country variations of explanatory variables and outcomes. Furthermore, aggregated measures are incapable of capturing significant variations in economic conditions (Elbers et al., 2003) and conflict intensity (Rustad et al., 2011) within countries. In addition, conflict areas are, in general, atypical of a nation as a whole (Buhaug and Lujala, 2005), which calls for a subnational level analysis. Addressing these disconnects—and the fact that most conflict operates at a local level (Rustad et al., 2011)—a recent body of studies has focused on how **subnational variations in poverty determine the locations within a country where conflicts break out** (Buhaug et al., 2011; Hegre et al., 2009; Østby et al., 2009). To date, their findings are largely mixed, with no consensus yet on strength, direction, or mechanisms behind the relationship. The problem here may be the use of varying proxies for poverty that are only loosely linked to the rationale for conflict and/or insufficient attention on the local sociopolitical context. The present study’s empirical contributions seek to help rectify the inadequate measures of poverty that have come to characterize the literature. To begin with, the article improves our understanding of whether and where a local poverty–conflict nexus exists by deploying experiential data on individuals’ actual wellbeing—which I argue is more closely connected to people’s motives and rationale for taking up arms. Second, the article examines the sociopolitical context’s conditioning effect on the poverty–conflict nexus. This is achieved by including data on **individuals’ perceptions surrounding the quality of their local institutions, the presence of group grievances, and local unemployment rates.** These factors, I argue, **are more closely linked to reasons for fighting** than are common proxies such as night-time luminosity and estimates of economic activity, both of which are often derived from dividing GDP per capita by local population counts. Poverty—a state in which individuals’ basic needs go unmet—has been shown to motivate people to join rebellions. Humphreys and Weinstein (2008), for instance, found that **poverty predicted inscription in the Revolutionary United Front during Sierra Leone’s civil war**. Barrett (2011) similarly saw how promises of **loot lured the poor to enlist in the 1997– 1998 dispute in Nigeria’s local government area known as Toto. Combatants of the Toto conflict were also more likely to join the rebellion if they stood to gain personal protection, food, and shelter.** For the present study, I developed a dataset by aggregating survey responses from the pan-African Afrobarometer survey to subnational districts and combining the results with information on post-survey violent conflicts. **The dataset consists of 4008 subnational districts, spanning 35 African countries.** As most districts were only assessed once, thus restricting study of within-unit variation, survey responses were also aggregated to higher-order subnational regions, resulting in a dataset of 111 regions that were surveyed at least twice; this permitted a region-level fixed-effects model design. **Using a pooled cross-sectional dataset of districts**, I found that **high levels of poverty were linked to** increases in local conflict-based violence. Districts with a large share of poor individuals, both in absolute terms and relative to country average, had a higher risk ofconflict than more affluent areas. This relationship held in a coarsened exact matching setup, as well as in a region-level fixed effects design with repeated measurements across time. While the results reveal a local poverty–conflict link, they do not aid in uncovering underlying mechanisms. Using interactions models, I found that **poverty increased the risk of conflict**, although only where local institutions are weak. The results also show that poverty-stricken areas in which individuals strongly perceive group injustice have a greater risk of conflict than similarly impoverished regions with no aggrieved population. A departure from the local individual opportunity cost explanation, local economic opportunities do not seem to condition the poverty–conflict nexus. In sum, the results suggest that while poverty is significantly connected to conflict, high-quality institutions and inclusiveness of ethnic groups can prevent violence. Although a wide range of robustness checks and alternative model specifications were implemented, including matching and fixed-effects models, the issue of endogeneity could not be ruled out; doing so would require some kind of exogenous instrument, which I have been unable to identify. The remainder of this article elaborates on the theoretical framework linking subnational poverty to local conflict-based violence. This is followed by a discussion of existing methods for measuring local poverty and their potential shortcomings. Next presented is the study’s research design and modeling strategy, followed by a discussion of empirical results. The conclusion considers the study’s limitations and proposes avenues for future research on poverty in locations that support rebel groups. Poverty and conflict A direct link **A connection between low income and risk of conflict is among the** most robust findings **in the literature on** civil **wars** (Hegre and Sambanis, 2006). However, there is little consensus on the mechanisms through which poverty may produce conflict. Collier and Hoeffler (1998) claimed that low per-capita income lowers the opportunity cost of rebellion because when they have less to lose from taking up arms, poorer individuals become more inclined to rebel. Fearon and Laitin (2003) observed that **poorer countries experience more conflict because they are unable to monitor and control all of their territory, thereby creating pockets of hospitable conditions for insurgents; Tollefsen and Buhaug (2015) identified a similar scenario at the local level.**

**Africa goes nuclear – brings in Middle East, terrorism, and nuclear powers**

**Mead** **13’** [(Walter Mead is a James Clarke Chace Professor of Foreign Affairs and Humanities, Bard College) “Peace in The Congo? Why the World Should Care,” The American Interest, December 15, 2013. <https://www.the-american-interest.com/2013/12/15/peace-in-the-congo-why-the-world-should-care/> [MNHS JS]

One of **the big**gest **question**s of the 21st century **is whether this destructive dynamic** can be contained, or whether the demand for ethnic, cultural and/or religious homogeneity **will continue to** convulse world politics, **drive new generations of conflict, and create millions more victims**. The Congo conflict is a disturbing piece of evidence suggesting that, **in Africa** at least, **there is potential for this kind of conflict**. The Congo war (and the long Hutu-Tutsi conflict in neighboring countries) is not, unfortunately alone. The secession of South Sudan from Sudan proper, the wars in what remains of that unhappy country, the secession of Eritrea from Ethiopia and the rise of Christian-Muslim tension right across Africa (where religious conflict often is fed by and intensifies “tribal”—in Europe we would say “ethnic” or “national”—conflicts) are strong indications that the **potential for** **huge and destructive conflict** **across Africa is very real**. But one must look beyond Africa. The Middle East of course is aflame in religious and ethnic conflict. The old British Raj including India, Pakistan, Bangladesh, Burma and Sri Lanka offers countless examples of ethnic and religious conflict that sometimes is contained, and sometimes boils to the surface in horrendous acts of violence. Beyond that, rival nationalisms in East and Southeast Asia are keeping the world awake at night. The Congo war should be a reminder to us all that the foundations of our world are dynamite, and that **the potential** **for** **new conflicts** **on the scale of the horrific wars of the 20th century is very much with us today**. The second lesson from this conflict stems from the realization of how much patience and commitment from the international community (which in this case included the Atlantic democracies and a coalition of African states working as individual countries and through various international institutions) it has taken to get this far towards peace. Particularly at a time when many Americans want the US to turn inwards, there are people who make the argument that it is really none of America’s business to invest time and energy in the often thankless task of solving these conflicts. That might be an ugly but defensible position if we didn’t live in such a tinderbox world. Someone could rationally say, yes, it’s terrible that a million plus people are being killed overseas in a horrific conflict, but the war is really very far away and America has urgent needs at home and we should husband the resources we have available for foreign policy on things that have more power to affect us directly. The problem is that **these wars spread. They may start in places that we don’t care much about** (most Americans didn’t give a rat’s patootie about whether Germany controlled the Sudetenland in 1938 or Danzig in 1939) **but they tend to spread to places that we do care very much about.** This can be because a revisionist great power like Germany in 1938-39 needs to overturn the balance of power in Europe to achieve its goals, or it can be because **instability in a very remote place triggers problems in places that we care about very much.** Out of Afghanistan in 2001 came both 9/11 and the **waves of insurgency and instability that threaten to rip nuclear-armed Pakistan apart or with trigger wider conflict India**. Out of the mess in Syria a witches’ brew of **terrorism and** religious **conflict looks** **set to complicate the security of our allies in Europe and the Middle East** and even the security of the oil supply on which the world economy so profoundly depends. **Africa**, and the potential for upheaval there, **is of more importance to American security** than many people may understand. **The line between Africa and the Middle East is a soft one**. The **weak states** that straddle the southern approaches of the Sahara **are ideal petri dishes for Al Qaeda type groups to form and attract local support**. There are **networks** of funding and religious contact that give groups in these countries potential access to **funds**, **fighters**, **training** and **weapons** **from the Middle East**. A war in the eastern Congo might not directly trigger these other conflicts, but it helps to create the swirling underworld of arms trading, money transfers, illegal commerce and the rise of a generation of young men who become experienced fighters—and know no other way to make a living. It destabilizes the environment for neighboring states (like Uganda and Kenya) that play much more direct role in potential crises of greater concern to us.

#### Nuke war means extinction

**Germanos 13’** [senior editor staff writer Common Dreams on IPPNW and PSR][“Nuclear War Could Mean ‘Extinction of the Human Race.’” Common Dreams, 10 Dec. 2013, www.commondreams.org/news/2013/12/10/nuclear-war-could-mean-extinction-human-race#:%7E:text=A%20war%20using%20even%20a,people%2C%20a%20new%20report%20warns.&text=The%20updated%20report%20adds%20that,such%20a%20war%20broke%20out.]

A war using even a small percentage of the world's nuclear weapons threatens the lives of two billion people, a new report warns. The findings in the report issued by International Physicians for Prevention of Nuclear War (IPPNW) and Physicians for Social Responsibility (PSR) are based on studies by climate scientists that show how nuclear war would alter the climate and agriculture, thereby threatening one quarter of the world's population with famine. "A nuclear war using only a fraction of existing arsenals would produce massive casualties on a global scale—far more than we had previously believed," Dr. Ira Helfand, the report’s author and IPPNW co-president, said in a statement. As their previous report showed, years after even a limited nuclear war, production of corn in the U.S. and China's middle season rice production would severely decline, and fears over dwindling food supplies would lead to hoarding and increases in food prices, creating further food insecurity for those already reliant on food imports. The updated report adds that Chinese winter wheat production would plummet if such a war broke out. Based on information from new studies combining reductions in wheat, corn and rice, this new edition doubles the number of people they expect to be threatened by nuclear-war induced famine to over two billion. "The prospect of a decade of widespread hunger and intense social and economic instability in the world’s largest country has immense implications for the entire global community, as does the possibility that the huge declines in Chinese wheat production will be matched by similar declines in other wheat producing countries," Helfand stated. The crops would be impacted, the report explains, citing previous studies, because of the black carbon particles that would be released, causing widespread changes like cooling temperatures, decreased precipitation and decline in solar radiation. In this scenario of famine, epidemics of infectious diseases would be likely, the report states, and could lead to armed conflict. From the report: Within nations where famine is widespread, there would almost certainly be food riots, and competition for limited food resources might well exacerbate ethnic and regional animosities. Among nations, armed conflict would be a very real possibility as states dependent on imports attempted to maintain access to food supplies. While a limited nuclear war would bring dire circumstances, the impacts if the world's biggest nuclear arms holders were involved would be even worse. "With a large war between the United States and Russia, we are talking about the possible —not certain, but possible—extinction of the human race," Helfand told Agence-France Presse. "In this kind of war, biologically there are going to be people surviving somewhere on the planet but the chaos that would result from this will dwarf anything we've ever seen," Helfand told the news agency. As Helfand writes, the data cited in the report "raises a giant red flag about the threat to humanity posed." Yet, as Dr. Peter Wilk, former national executive director of PSR writes in an op-ed today, the "threat is of our own creation." As a joint statement by 124 states delivered to the United Nations General Assembly in October stated: "It is in the interest of the very survival of humanity that nuclear weapons are never used again, under any circumstances." "Countries around the world—those who are nuclear-armed and those who are not—must work together to eliminate the threat and consequences of nuclear war," Helfand said. “In order to eliminate this threat, we must eliminate nuclear weapons.”

## 3 – Russia

#### Deep space exploration is a shared goal that prevents escalation of US-Russia tensions. But privatization threatens it independent of our other internal links

CSIS 18’ [(Center for Strategic and International Studies), “Why Human Space Exploration Matters,” August 21, 2018 https://www.csis.org/blogs/post-soviet-post/space-cooperation]

U.S.-Russian space cooperation continues to be a stated mutual goal. In April 2018, President Putin said of space, “Thank God, this field of activity is not being influenced by problems in politics. Therefore, I hope that everything will develop, since it is in the interests of everyone…This is a sphere that unites people. I hope it will continue to be this way.” During his statement at a recent event at CSIS, NASA Administrator Jim Bridenstine said, “[space] is our best opportunity to dialogue when everything else falls apart. We’ve got American astronauts and Russian cosmonauts dependent on each other on the International Space Station, which enables us to ultimately maintain that dialogue.” The U.S. and Russia both benefit from the ISS partnership. Russia provides transportation to the ISS for U.S. astronauts, from which Russia receives an average of $81 million per seat on the Soyuz (and recognition of its status as a space power). The U.S. also benefits from Russia’s technical contributions to the ISS while Russia benefits The U.S. and Russia signed a joint statement in 2017 in support of the idea of collaborating on deep space exploration, including the construction of the Lunar Orbital Platform-Gateway, a research-focused space station orbiting the moon. Through agreements on civilian space exploration, such as the Lunar Orbital Platform-Gateway or future Mars projects, that have clear benefits to both sides, some degree of cooperation will remain in both countries’ interest. The high price tag for pursuing space exploration alone and opportunities for sharing and receiving technical expertise encourages international partnerships like the ISS. However, at least three factors, apart from the overall deterioration of U.S.-Russia relations, threaten this cooperation. First, growth of the private sector space industry may alter the economic arrangement between the U.S. and Russia, and ultimately lower the benefits of cooperation to both countries. The development of advanced technologies by private companies will give NASA new options to choose from and reduce the need to depend on (and negotiate with) Russia. If NASA and its Russian counterpart, Roskosmos, have no need to talk with one another, they probably won’t in the face of tense political relations. The U.S. intends to use Boeing and SpaceX capsules for human spaceflight beginning in 2020, and a Congressional plan in 2016 set a phase out date of Russian RD-180 rocket engines by 2022.

#### Space missions prove vital for cooperation between Russia and the US. Biden and Putin know – first steps have already been made

Luxmoore 21’ U.S. and Russia Find Some Common Ground—in Space, https://foreignpolicy.com/2021/11/03/us-russia-space-cooperation-nasa-sirius/, Foreign Policy,

MOSCOW—Ashley Kowalski has spent much of her career advancing international space cooperation at the nonprofit Aerospace Corporation in California, most recently as a project manager. Now, the 32-year-old American is going to put her passion to the test—by locking herself in a hermetically sealed capsule with five strangers for an eight-month simulated mission to space. “Throughout my life I’ve tried to marry my work in the space industry with my love for different cultures,” said Kowalski, who has done previous fellowships in Germany, Russia, and China. “So this program stood out for me.” On Nov. 4, Kowalski will join one other American, three Russians, and an Emirati inside the confined facility in a Soviet-era building on the outskirts of Moscow that’s meant to mimic as much as possible the conditions on long space journeys, including both the physiological and the psychological challenges. A barrage of daily tests will record the changes the aspiring astronauts undergo and relay the data to a team of researchers at Moscow’s Institute of Biomedical Problems, which has teamed up with NASA to launch the Scientific International Research in Unique Terrestrial Station, or SIRIUS. The project is meant to gather data on how people cope physically and mentally with long-term confinement, a necessary prelude to longer space journeys to the moon or even Mars; the data will be made available to various space agencies. The international component of the experiment is important, because scientists hope that international crews working together on land could smooth the path to eventual joint exploration of Mars. SIRIUS and similar experiments not only could pave the way for future joint missions but also show how 30 years after the end of the Cold War, and amid sharply rising tensions between Washington and Moscow, space remains a rare field of cooperation. The United States depended on Russia for years to deliver its astronauts to the International Space Station (ISS), an arrangement that bolstered Russia’s reputation as a reliable partner and ensured a steady revenue stream. In April, Russia extended its space cooperation agreement with the United States until 2030, ensuring joint work on the ISS will continue. But that has been overshadowed in recent years by Russia’s adventurism in Europe, meddling in U.S. elections, devastating cyberattacks against U.S. targets, use of the energy weapon to choke Europe, and a sudden breakdown in relations between Russia and NATO this fall. In June, at a bilateral summit in Geneva, U.S. President Joe Biden and Russian President Vladimir Putin zeroed in on common interests such as cybersecurity and arms control as a way of maintaining some cooperation, and the Biden administration has [continued](https://www.nytimes.com/2021/10/31/world/europe/biden-putin-russia-united-states.html) to look for ways to reduce tension; space also fits the bill perfectly. “There are areas where there’s a mutual interest for us to cooperate, for our people—Russian and American people—but also for the benefit of the world,” Biden said after the summit. Six folks in a tube may not be enough to defuse all the tensions between the two geopolitical rivals. But for those going inside—and the scientists watching from the outside—the stakes are still high. Humans have evolved over hundreds of millennia to thrive in an environment with oxygen, water, and gravity. NASA has spent years conducting earthbound experiments to see what happens when those basic conditions are missing, including paying people to lie in bed for months and experience the effects of muscle loss and bone degradation, which accelerates rapidly in an atmosphere of weightlessness. The SIRIUS volunteers won’t have to worry about either weightlessness or cosmic radiation. But the simulation offers them a chance to prove they have the right stuff and could meet at least some of the criteria for future travel to space. “The process is somewhat similar to astronaut selection,” said Igor Kofman of NASA’s Human Research Program, which chose the two U.S. participants and two backups for this year’s mission, known as SIRIUS-21, from a pool of hundreds of candidates. In the past, far less attention was paid to the mental well-being of the Mercury, Gemini, and Apollo crews who pioneered early space exploration in the 1960s and 1970s. With longer missions on the horizon, a good psychological fit becomes even more important. The current crop of volunteers is being evaluated on their ability to adapt to new situations they cannot change, tolerance for isolation and confinement, and the unflappability required to spend extended periods of time with relative strangers. Reinhold Povilaitis, a participant in the four-month SIRIUS mission in 2019 and now an employee of NASA’s Human Research Program, said he found it hard initially to adapt to the customs of his crew members, like the constant tea-drinking sessions of the Russians. “They may have bonded prior to going in, but they haven’t lived together,” he said of the current crop of volunteers. “And what they can tolerate at the beginning might not be the same at the end. So they find balance, hopefully, in the course of eight months.” “This is a stressful situation,” said Oleg Blinov, a 43-year-old Russian space industry worker who will serve as captain of SIRIUS-21 and be responsible for safeguarding a sociable atmosphere among members of the crew and resolving any conflicts. “If we don’t remain upbeat, it’ll be difficult to get through it.” Many previous ground simulations had only American participants, but Kofman said the international crew of SIRIUS-21 likely reflects the space crews of the future. “We’re hoping future missions will be multicultural,” he said. “That’s why it’s important to simulate those parameters and those conditions.” Those conditions include plenty of physical discomforts to go with the isolation. Most of the time an astronaut spends on the ISS is spent assembling and maintaining the spacecraft, and the SIRIUS-21 volunteers will be subject to a daily schedule that is timed to the minute and designed to counteract boredom and mimic the workload of a real space flight. Exercise is daily; showers are once a week. Food rations include freeze-dried meals and powdered substances that solidify when mixed with hot water, and bathrooms are around the size of those on a Russian train. Communication with friends and family will be limited to an occasional email. “This means being away from your family, from home comforts. That’s the sacrifice,” said Abdalla al-Hammadi, 35, a former Emirati test pilot and father of two who was chosen from around 1,000 applicants to take part in SIRIUS. The United Arab Emirates has a burgeoning space sector and plans to send its first astronauts to Mars in 2117. Hammadi hopes his involvement with SIRIUS will increase his grandson’s or great-grandson’s chances of being on that Mars mission. “I am giving this to my son, my son will give it to his son, and it will carry on,” he said. (Just before the experiment started, Hammadi learned that another Emirati volunteer would take his spot, and he would act as a backup.) The UAE’s ambitions represent a shifting of the center of gravity in the space race. Russia for decades was one of the dominant powers, and even more so after the United States wound down its Space Shuttle program. But last year, SpaceX completed the first manned orbital flight from U.S. soil in almost a decade, breaking Russia’s monopoly and ushering in a new era of competition. Delivering astronauts to space on a rocket designed and manufactured by a private U.S. company, the SpaceX launch culminated a decadeslong effort to transform space into a new sphere of capitalist competition and rattled dominant Russian state enterprises that had inherited Soviet technology. (But not Soviet-level budgets: In 2020, the [budget](https://tass.ru/ekonomika/7734535) of Russian space agency Roscosmos was around $2.4 billion at current exchange rates; NASA’s was $22.6 billion.) “From a historical point of view, Russia played a major role in space. But from today’s perspective, its influence is rapidly waning,” said Ivan Moiseyev, head of the Institute of Space Policy in Moscow. “The U.S. is an economic powerhouse in space, and Europe and China are beginning to exceed Russia in their potential.” The end goal for most of the volunteers is to participate in a real orbital flight in the years to come, with SIRIUS a preview of that ultimate challenge. But if the space simulation is not enough to qualify them, it’s all in the name of advancing science, too. “This is probably the largest amount of data from an analog data study that anybody has ever collected,” Kowalski said. “At the end of the day, we’re doing something that’ll help human space flight. Maybe being an astronaut is not part of my future, maybe I don’t stay in the space industry. But at least I know that I was part of something bigger.”

#### It’s make or break for the relationship – Ukraine and the decline of US authority puts us at the brink of war.

Weir 21 [(Fred Weir has been the Monitor's Moscow correspondent, covering Russia and the former Soviet Union, since 1998. He's traveled over much of that vast territory, reporting on stories ranging from Russia's financial crash to the war in Chechnya, creeping Islamization in central Asia, Russia's demographic crisis, the rise of Vladimir Putin and his repeated returns to the Kremlin, and the ups and downs of US-Russia relations). “Worse than the Cold War? US-Russia relations hit new low.“ Christian Science Monitor 4-20-2021 https://www.csmonitor.com/World/Europe/2021/0420/Worse-than-the-Cold-War-US-Russia-relations-hit-new-low]

Russia’s relations with the West, and the United States in particular, appear to be plumbing depths of acrimony and mutual misunderstanding unseen even during the original Cold War.After years of deteriorating relations, sanctions, tit-for-tat diplomatic expulsions, and an escalating “information war,” some in Moscow are asking if there even is any point in seeking renewed dialogue with the U.S., if only out of concern that more talking might just make things worse. Events have cascaded over the past month. Russia’s treatment of imprisoned dissident Alexei Navalny, who has been sent to a prison hospital amid reports of failing health, underlines the sharp perceived differences between Russia and the West over matters of human rights. Meanwhile, a Russian military buildup near Ukraine has illustrated that the conflict in the Donbass region might explode at any time, possibly even dragging Russia and NATO into direct confrontation. With its relations with Washington at a nadir, Russia is eyeing a more pragmatic, if adversarial, relationship with the U.S. in the hopes of getting the respect it desires. President Joe Biden surprised the Kremlin by proposing a “personal summit” to discuss the growing list of U.S.-Russia disagreements in a phone conversation with Vladimir Putin last week. He later spoke of the need for “disengagement” in the escalating tensions around Ukraine, and postponed a planned visit of two U.S. warships to Russia-adjacent waters in the Black Sea. But days later he also imposed a package of tough sanctions against Russia, for its alleged SolarWinds hacking and interference in the 2020 U.S. presidential elections, infuriating Moscow and drawing threats of retaliation. Last month, after Mr. Biden agreed with a journalist’s intimation that Mr. Putin is a “killer,” the Kremlin ordered Russia’s ambassador to the U.S. to return home for intensive consultations, an almost unprecedented peacetime move. Over the weekend, Russian Foreign Minister Sergey Lavrov suggested that the acting U.S. ambassador to Moscow, John Sullivan, should likewise go back to Washington for a spell. On Tuesday, Mr. Sullivan announced he would do just that this week. And there is a growing sense in Moscow that the downward spiral of East-West ties has reached a point of no return, and that Russia should consider abandoning hopes of reconciliation with the West and seek permanent alternatives: perhaps in an intensified compact with China, and targeted relationships with countries of Europe and other regions that are willing to do business with Moscow. “Things are at rock bottom. This may not be structurally a cold war in the way the old one was, but mentally, in terms of atmosphere, it’s even worse,” says Fyodor Lukyanov, editor of Russia in Global Affairs, a Moscow-based foreign policy journal. “The fact that Biden offered a summit meeting would have sounded a hopeful note anytime in the past. Now, nobody can be sure of that. A hypothetical Putin-Biden meeting might not prove to be a path to better relations, but just the opposite. It could just become a shouting match that would bring a hardening of differences, and make relations look like even more of a dead end.” Room for discussion Foreign policy experts agree that there is a long list of practical issues that could benefit from purposeful high-level discussion. With the U.S. preparing to finally exit Afghanistan, some coordination with regional countries, including Russia and its Central Asian allies, might make the transition easier for everyone. One of Mr. Biden’s first acts in office was to extend the New START arms control agreement, which the Trump administration had been threatening to abandon, but the former paradigm of strategic stability remains in tatters and requires urgent attention, experts say. “If you are looking for opportunities to make the world a safer place through reason and compromise, there are quite a few,” says Andrey Kortunov, director of the Russian International Affairs Council, which is affiliated with the Foreign Ministry. “There are also some areas where the best we could do is agree to disagree, such as Ukraine and human rights issues.” The plight of Mr. Navalny, which has evoked so much outrage in the West, seems unlikely to provide leverage in dealing with the Kremlin because – as Western moral authority fades – Russian public opinion appears indifferent, or even in agreement with its government’s actions. Recent surveys by the Levada Center in Moscow, Russia’s only independent pollster, found that fewer than a fifth of Russians approve of Mr. Navalny’s activities, while well over half disapprove. An April poll found that while 29% of Russians consider Mr. Navalny’s imprisonment unfair, 48% think it is fair. Russian opposition figure Alexei Navalny, shown here during a hearing in the Babuskinsky District Court in Moscow Feb. 12, 2021, is in poor health amid his hunger strike while in prison in Russia. He was recently moved to a prison hospital. Tensions around the Russian-backed rebel republics in eastern Ukraine have been much severer than usual, with a spike in violent incidents on the front line, a demonstrative Russian military buildup near the borders, and strong U.S. and NATO affirmations of support for Kyiv. The Russian narrative claims that Ukrainian President Volodymyr Zelenskiy triggered the crisis a month ago by signing a decree that makes retaking the Russian-annexed territory of Crimea official Ukrainian state policy. Mr. Zelenskiy has also appealed to the U.S. and Europe to expedite Ukraine’s membership in NATO, which Russia has long described as a “red line” that would lead to war. But Russian leaders, who have been at pains to deny any direct involvement in Ukraine’s war for the past seven years, now say openly that they will fight to defend the two rebel republics. Top Kremlin official Dmitry Kozak even warned that if conflict erupts, it could be “the beginning of the end” for Ukraine. “This is a very desperate situation,” says Vadim Karasyov, director of the independent Institute of Global Strategies in Kyiv. “We know the West is not going to help Ukraine militarily if it comes to war. So we need to find some kind of workable compromises, not more pretexts for war.” Time to turn eastward? In this increasingly vexed atmosphere, the Russians appear to be saying there is no point in Mr. Putin and Mr. Biden meeting unless an agenda has been prepared well in advance, setting out a few achievable goals and leaving aside areas where there can be no agreement. “Russia isn’t going to take part in another circus like we had with Trump in Helsinki in 2018,” says Sergei Markedonov, an expert with MGIMO University in Moscow. “What is needed is a deeper dialogue. That could begin if we had a real old-fashioned summit between Biden and Putin, one that has been calculated to yield at least some positive results. We need to find a modus vivendi going forward, and the present course is not leading there.” Alternatively, Russia may turn away from any hopes of even pragmatic rapprochement with the West, experts warn. Mr. Lukyanov, who maintains close contact with his Chinese counterparts, says they felt blindsided at a summit with U.S. foreign policy chiefs in Alaska last month, when what they expected to be a practical discussion of how to overcome the acrimonious Trump-era legacy in their relations turned into what they saw as a U.S. lecture about how China needs to obey the “rules-based” international order. “It was the Chinese, in the past, who were very cautious about participating” in anything that looked like an anti-Western alliance, says Mr. Lukyanov. “We are hearing a new tone from them now. Now our growing relationship with China isn’t just about compensating for a lack of relations with the U.S. It’s about the need to build up a group of countries that will resist the U.S., aimed at containing U.S. activities and policies that are harmful to our two countries.”

#### Tensions and war will go nuclear.

**Marrow and Trevelyan 21’** (“Russia says it may be forced to deploy mid-range nuclear missiles in Europe”, Alexander Marrow and Mark Trevelyan, 12/13/2021, https://www.reuters.com/world/russia-says-lack-nato-security-guarantees-would-lead-confrontation-ria-2021-12-13/)

MOSCOW, Dec 13 (Reuters) – **Russia** said on Monday it may be **forced to deploy** intermediate-range **nuclear missiles** in Europe **in response** to what it sees as NATO's plans to do the same. The warning from Deputy Foreign Minister Sergei Ryabkov **raised the risk of a new arms build-up** on the continent, **with East-West tensions at their worst** since the Cold War ended three decades ago. Ryabkov said **Russia would be forced to act** if the West declined to join it in a moratorium on intermediate-range nuclear forces (INF) in Europe - part of a package of security guarantees it is seeking as the price for defusing the crisis over Ukraine. **Lack of** progress towards **a** political and diplomatic **solution would lead Russia to respond** in a military way, **with military technology**, Ryabkov told Russia's RIA news agency. "That is, it will be a confrontation, this will be the next round," he said, referring to the potential deployment of the missiles by Russia. Intermediate-range nuclear weapons - those with a range of 500 to 5,500 km (310 to 3,400 miles) - were banned in Europe under a 1987 treaty between then-Soviet leader Mikhail Gorbachev and U.S. President Ronald Reagan in what was hailed at the time as a major easing of Cold War tensions. By 1991, the two sides had destroyed nearly 2,700 of them. Washington withdrew from the pact in 2019 after complaining for years of alleged violations revolving around **Russia's development of a** ground-launched **cruise missile** that Moscow calls the 9M729 and NATO refers to as **the "Screwdriver.”** If NATO is right that **Russia has already deployed this** system in the European part of the country, west of the Ural Mountains, then Ryabkov's threat is an empty one, according to Gerhard Mangott, an expert on Russian foreign policy and arms control at the University of Innsbruck in Austria. But if Russia's denials are true, he said, then Moscow's warning is "the final signal to NATO that it should enter into talks with Russia about a freeze-freeze agreement.” He added: "If NATO sticks with the position not to negotiate about a deal, then **we will certainly see Russia deploy the** **Screwdriver** **missile** at its very western border.” POINT MAN Ryabkov has emerged in recent days as one of Moscow's key messengers as President Vladimir Putin presses for Western security guarantees while facing warnings from the United States and its allies to back away from a possible invasion of Ukraine - something the minister again denied was Russia's intention. He repeated **a comparison** he made last week **between** the **current tensions and the Cuban missile crisis** of 1962, which brought the United States and Soviet Union to **the brink of nuclear war**. Ryabkov said there were "indirect indications" that **NATO was moving closer to** re-**deploying intermediate-range missiles**, including its restoration last month of the 56th Artillery Command which operated nuclear-capable Pershing missiles during the Cold War. NATO says there will be no new U.S. missiles in Europe and it is ready to deter new Russian missiles with a "measured" response that would only involve conventional weapons. But Ryabkov said **Russia had a "complete lack of trust”** in the alliance. "They don't permit themselves to do anything that could somehow increase our security - they believe they can act as they need, to their advantage, and we simply have to swallow all this and deal with it. This is not going to continue.”

#### Nuke war causes extinction – it won’t stay limited

**Edwards 17** [(Paul N. Edwards, CISAC’s William J. Perry Fellow in International Security at Stanford’s Freeman Spogli Institute for International Studies. Being interviewed by EarthSky/card is only parts of the interview directly from Paul Edwards.) “How nuclear war would affect Earth’s climate,” EarthSky, September 8, 2017, earthsky.org/human-world/how-nuclear-war-would-affect-earths-climate]

We are not talking enough about the climatic effects of nuclear war. The “nuclear winter” theory of the mid-1980s played a significant role in the arms reductions of that period. But with the collapse of the Soviet Union and the reduction of U.S. and Russian nuclear arsenals, this aspect of nuclear war has faded from view. That’s not good. In the mid-2000s, climate scientists such as Alan Robock (Rutgers) took another look at nuclear winter theory. This time around, they used much-improved and much more detailed climate models than those available 20 years earlier. They also tested the potential effects of smaller nuclear exchanges. The result: an exchange involving just 50 nuclear weapons — the kind of thing we might see in an India-Pakistan war, for example — could loft 5 billion kilograms of smoke, soot and dust high into the stratosphere. That’s enough to cool the entire planet by about 2 degrees Fahrenheit (1.25 degrees Celsius) — about where we were during the Little Ice Age of the 17th century. Growing seasons could be shortened enough to create really significant food shortages. So the climatic effects of even a relatively small nuclear war would be planet-wide. What about a larger-scale conflict? A U.S.-Russia war currently seems unlikely, but if it were to occur, hundreds or even thousands of nuclear weapons might be launched. The climatic consequences would be catastrophic: global average temperatures would drop as much as 12 degrees Fahrenheit (7 degrees Celsius) for up to several years — temperatures last seen during the great ice ages. Meanwhile, smoke and dust circulating in the stratosphere would darken the atmosphere enough to inhibit photosynthesis, causing disastrous crop failures, widespread famine and massive ecological disruption. The effect would be similar to that of the giant meteor believed to be responsible for the extinction of the dinosaurs. This time, we would be the dinosaurs. Many people are concerned about North Korea’s advancing missile capabilities. Is nuclear war likely in your opinion? At this writing, I think we are closer to a **nuclear war** than we have been since the early 1960s. In the North Korea case, both Kim Jong-un and President Trump are bullies inclined to escalate confrontations. President Trump lacks impulse control, and there are precious few checks on his ability to initiate a nuclear strike. We have to hope that our generals, both inside and outside the White House, can rein him in. North Korea would most certainly “lose” a nuclear war with the United States. But many millions would die, including hundreds of thousands of Americans currently living in South Korea and Japan (probable North Korean targets). Such vast damage would be wrought in Korea, Japan and Pacific island territories (such as Guam) that any “victory” wouldn’t deserve the name. Not only would that region be left with horrible suffering amongst the survivors; it would also immediately face famine and rampant disease. Radioactive fallout from such a war would spread around the world, including to the U.S. It has been more than 70 years since the last time a nuclear bomb was used in warfare. What would be the effects on the environment and on human health today? To my knowledge, most of the changes in nuclear weapons technology since the 1950s have focused on making them smaller and lighter, and making delivery systems more accurate, rather than on changing their effects on the environment or on human health. So-called “battlefield” weapons with lower explosive yields are part of some arsenals now — but it’s quite unlikely that any exchange between two nuclear powers would stay limited to these smaller, less destructive bombs.