Power Levels in the Avatar Universe

Expressed in terms of net energy output.

Ghazan

Gazan melted the Northern Air Temple Mountain at peak bending capacity.

Given: an approximate energy of 900kJ/kg to melt rock[1] and an average density of 2.7g/cm^3 for rock [2].
[1] (http://home.earthlink.net/~jimlux/lava.htm)
[2] (http://en.m.wikipedia.org/wiki/Continental_crust)

Approximate: The temple has a footprint of about 500m x 500m = 250,000m^2. The mountain has rather sheer faces so let's give it a cylindrical profile and say about 400m vertically is melted. That's 100,000,000m^3 of rock.

Based on our givens, that is 270,000,000,000kg of rock or 243,000,000,000,000kJ of energy, 243 petaJoules.

Gazan outputs the energy equivalent of the Tsar Bomba, the largest nuclear device ever tested.
Or enough to power all the electricity in New York City for 6,136 days, i.e. 17 years.

If the energy all came from within him through conventional biology, he burned 5.8x10^13 kilocalories (or just capital "C" Calories - of which we are recommended to eat 2000 a day by food packaging), that's 29,000,000,000 days or 79 million years of meals. If he was converting mass directly to energy, then via Einstein, he lost 2.7kg of pure mass (not bad!).

Zaheer

His limit of energy is nearly being able to fly out of an airbender tornado with Korra in tow.

Given: For air at 20 degrees celsius and average humidity, convert wind speed in m/s to pressure in pascals via p = v^2 * 0.613kg/m^3. Skydiving headfirst exposes a surface area of about 0.2m^2 with a drag coefficient of 0.7 [3].
[3] (http://philschatz.com/physics-book/contents/m42080.html)

Approximate: The highest recorded wind speed for a tornado is 302mph (135m/s). Zaheer with Korra can resist this wind by pushing with 3128 Newtons, or 700 pounds of force. He must also exert force to stay afloat: let's say he and Korra weigh about 450 pounds, so an additional 2000 Newtons. Exerting the full ~5000 Newtons, Zaheer would have needed to expend 5,000 Joules per meter of the tornado he wished to escape.

For the sake of argument, it seems that once he let go of Korra, he could have flown out of the tornado even from the bottom at 2500 Newtons over a generous height for the tornado of 1km, or 2.5 million Joules, 2.5 megaJoules or 0.00000000001 Ghazans.

This is equivalent to the kinetic energy of a 2 tonne vehicle traveling almost 115mph or about the food energy of two Snickers bars [4].
[4] (http://en.wikipedia.org/wiki/Orders_of_magnitude_(energy))

Given his inability to fly out of the tornado, we also learn that there is an upper limit to Zaheer's power generation at below 5000 Watts.

Bumi

Did something to retake Omashu?
It was probably very impressive or brilliantly minimal. XD

Sokka

Threw a boomerang.

Given: KE = 1/2 * m * v^2

Approximate: Mass of Sokka's boomerang as 1.2 lbs (0.5kg) (mass of a heavy hunting boomerang - which technically is too heavy to return, though - but let's give Sokka the benefit of the doubt mass-wise).
World's fastest thrown frisbee around 90 mph (144 km/hr) (40m/s)

Net energy out = 1/2 * (0.5kg) * (40 m/s)^2 = 400 Joules or 0.0000000000000016 Ghazans

Avatar Aang + Ocean Spirit

Waterbended ocean to push away Fire Nation fleet.

Avatar Kyoshi

Separated a peninsula from the mainland, turning it into Kyoshi Island.

Given: an approximate energy of 900kJ/kg to melt rock[5] and an average density of 2.7g/cm^3 for rock [6].
[5] (http://home.earthlink.net/~jimlux/lava.htm)
[6] (http://en.m.wikipedia.org/wiki/Continental_crust)

Approximate: Kyoshi island is about the size of Nantucket, 120 km^2. Avatar Kyoshi melts the continental plate beneath the island let's say to a depth of about 100 meters and then pushes the whole mass above it out 40 kilometers in about 10 seconds.

Kyoshi melts about 3.1 x 10^13 kg of rock requiring 2.8 x 10^19 J (28 exaJoules) of energy. She then moves the whole island, let's say it's about 1km tall on average, so 120 km^3 or 3.1 x 10^14 kg of rock. Given the length of the sequence, it travels at about 4000 m/s, meaning that Kyoshi is expending a total of 2.5 x 10^21 Joules of energy (2.5 zettaJoules). The energy required to melt the rock in this case is two orders of magnitude smaller than the energy to move it, paling in comparison.

Kyoshi output 5 times the average current Earth's annual energy consumption.
This terraforming feat utilized 600,000 megatons of TNT worth of energy, almost nearly equivalent to the Earth being hit by an asteroid that is a little less than 2km in diameter [7].
[7] (http://users.tpg.com.au/users/tps-seti/climate.htm)

Assuming direct conversion of mass to energy, Kyoshi converted 28,000 kg of atomic mass.

Kyoshi's power level was about 10,000 Ghazans.

Avatar Korra
Kaiju-time? :(

Fire Lord Ozai (under Sozin's Comet)
Continuous torching of the Earth Kingdom landscape.

There are a few things to consider here. Firebending looks like a flamethrower, but what exactly is combusting? They certainly aren't shooting fuel out of their hands, just chi. Is chi energy actually causing the air (mostly nitrogen) itself to oxidize (which would require tremendous energy)? Or perhaps we should judge the heat energy released based on the color of the fire-bender's flame (makes sense since Azula's more intense fire burns bluer)? I'm going to go with the latter.

Given:

Approximate: The swath of land being burned by Ozai looked about ?.

Appa
Flies for a freakin' long time, though as we know from physics, energy is only used to increase altitude and overcome drag. SInce Appa doesn't obey any other physics of flight, this calculation is questionable.

Librarian
Brought down the Great Library.

Momo

Jet

Moon Fish (to get to the moon)

Iroh
Redirect an entire lightning strike?
Dragon breath?

More Reading:

http://scifi.stackexchange.com/questions/54913/in-terms-of-energy-output-what-type-of-bending-is-strongest