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```
% created by Trent Dillon on May 30th 2018
% code creates power matrices for WEC

clear all, close all, clc
```

set parameters

```
x0 = 7; %[s] energy period center
y0 = 4; %[m] significant wave height center
xmin = 3; %[s] energy period min
xmax = 20; %[s] energy period max
ymin = 1; %[m] significant wave height min
ymax = 10; %[m] significant wave height max
width = 30;
rated_power = 1000; %[watts]

y = ymin:ymax;
x = xmin:xmax;
```

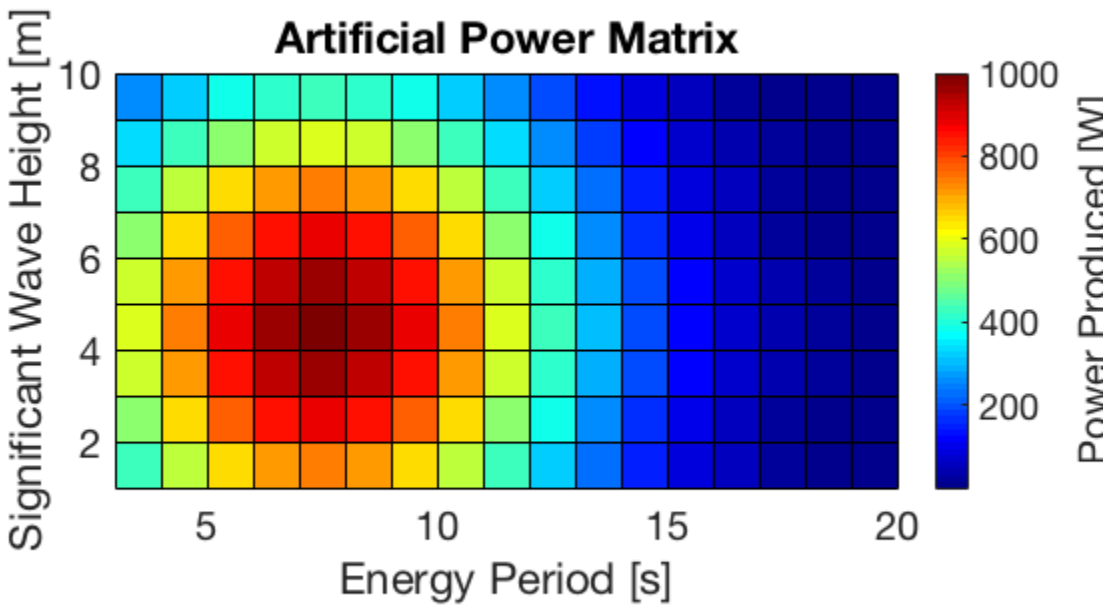
create power matrix using Gaussian Distribution

```
close all
powermatrix = zeros(length(y),length(x));

for i = 1:length(x)
    for j = 1:length(y)
        powermatrix(j,i) = rated_power*exp(-1*((x(i)-x0)^2+(y(j)-
y0)^2)/width);
    end
end
```

visualize

```
close all

figure
pc = pcolor(x,y,powermatrix);
colormap jet
```

```
%set(pc, 'EdgeColor', 'none'); %remove edges to better visualize
c = colorbar;
ylabel(c,'Power Produced [W]','Fontsize',20)
axis equal
axis tight
title('Artificial Power Matrix','Fontsize',20)
ylabel('Significant Wave Height [m]','Fontsize',20)
xlabel('Energy Period [s]','Fontsize',20)
set(gca,'Fontsize',20)
% hold on
% for ii=1:length(x)
%   for jj = 1:length(y)
%       text(x(ii),y(jj),num2str(powermatrix(ii,jj)))
%   end
% end
```



save

```
save('powermatrix_normaldist','powermatrix')
```

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